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Textile World

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What 75c Rayon Means

THE key number of rayon now sells at 75c per lb., with a 90-day guarantee against a decline in prices. From the consumer's standpoint this is, apparently, all to the good. He can now secure, at a price approximately 73% below that ruling seven years ago, a material which has been improved to a degree more difficult to express in percentages, but at least as impressive.

The practical certainty of an impending cut has been realized, and to some extent discounted, in the market for two months. In our Nov. 1 issue, we reported a rumor to the effect that producers had even advised customers of the "real likelihood" of a cut during or after the holiday period. We asked the question: "Is there, or is there not, justification for a downward revision of quotations at this time? . . . . The producers have the answer to the question. They owe it to their customers and to themselves to state that answer, publicly and emphatically, now — not two months from now."

The answer — or an answer — was given last week. And, as we have stated, the consumer benefits — at least momentarily.

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From the producers' standpoint, the situation is not so attractive. Theoretically, the cut extracts some $20,000,000 from the apparent annual revenue of the industry. Actually, of course, it means no such thing, as sub-rosa price-cutting has made list quotations prices in name only. Nevertheless there is at least room for doubt that the industry, as a whole, can make a profit, or break even, on 75c rayon.

Then why sell at 75c? An attempt to answer this question is complicated by the difficulty of separating rumor from fact, and of classifying a number of factors in the order of their relative importance.

However, acknowledging of course the influence of general business conditions, of raw silk weakness, and of increased productive capacity, it is possible to isolate one other factor which may be regarded as the dominant and immediate cause of this particular price cut.

It is not, primarily, a cut to promote business by increased consumption. It is a move in a price war.

We do not know who started the war. We do know that the alleged overt acts which led to it were unbridled production in some units in the latter part of 1930 and the sale of that production at whatever prices could be secured.

As we stated, that was the alleged cause. The extent to which these charges were founded is not important. The effect of their existence is.

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Where does the industry go from here?

A really first class war of course can mean a succession of price cuts without regard to cost of production. If there are any firms in the market which feel they can stand the gaff, they are entitled to try it. If either a freeze-out or the consummation of one of the much-rumored mergers is to be the ultimate outcome, that too can be tried. If martial manoeuvers are to involve "taking it out of wages," we presume workers in rayon plants will be the target for successive wage reductions.

If, however, on more sober consideration it is felt that the synthetic fiber industry is sufficiently attractive to promise adequate returns for all efficient units now engaged in it, the only course open would seem to be a return to the path of cooperation on which the industry started but from which it was diverted.

By cooperation we do not mean price-fixing. We mean the type of activity which is being undertaken by other branches of the textile industry: An intelligent analysis of the market; a knowledge of costs; and a determination to produce what can be sold and to sell to that market at a price yielding a fair profit. This means, fundamentally, that any firm which *has* been operating at 100% capacity in the face of an apparent demand for 75%, and which *has* been selling at unprofitable levels, will have to realize that such practices inevitably lead to war and ruin.

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We are not alarmed at 75c rayon. In 1924, during the $2.75 régime, we stated: "Increasing competition; advantages of large scale production; efficiencies resulting from chemical and mechanical perfection—all these factors presage lower rather than higher prices for the broad future."

However there is a wide difference between price reductions resulting from orderly and efficient progress, and those forced by the cumulative effect of poor merchandising.

The Week in Textiles

Textiles a Leader in 1931 . . .

"BUSINESS ACTIVITY in 1931 will be on a rising trend. . . . . Among the leaders in the revival are likely to be the automotive and textile industries. . . . . Clothing is a necessity and the wear that is constantly going on builds up a potential demand for textiles. Some signs of recovery have already appeared in cotton, wool and silk. The coming year should be featured by a sustained uprising in these products with a total well above 1930 volume." . . . . This comment is by H. W. Moorhouse, president of the Brookmire Economic Service, Inc., in the annual business survey number of the New York *Evening Post.*

May Settle English Dispute . . .

COTTON WAGES dispute in Lancashire, England, continues, but the outlook is more hopeful. . . . . Government has intervened and has brought parties together for preliminary talk which, it is hoped, will lead to cancellation of lockout notices timed to come into effect in all Lancashire weaving mills on Saturday (Jan. 17). . . . . The end of the week will show which way the cat is going to jump.

Underwear Sales Less . . .

KNIT UNDERWEAR production and sales in the United States last November were less than in the preceding month, and less also than in November, 1929, according to figures just issued by the Department of Commerce. Statistics based on a survey of 144 establishments (all classes) show November shipments to be 1,147,982 dozens against 1,364,707 in October. The decline was most noticeable in winterweights, although women's drawers were an outstanding exception, the output there rising from 58,856 dozens in October to 63,170 in November. A survey of 85 identical cotton underwear mills indicated a falling-off; November shipments were 740,172 against 876,678 in October. A singular point in this survey was that men's winter, summer and unclassified cotton underwear held virtually parallel between the two months; women's cotton underwear showed a sharp drop in November, especially the unclassified line which fell from 15,854 dozens in October to 6,575 in November. . . . . November output compared with November, 1929, showed a drop in some cases of more than 50%. November, 1930, shipments totaled 1,012,458 dozens against 1,163,814 in the same month in the preceding year. Men's summer union suits produced last November totaled 29,975 against 53,905 in November, 1929.

Cotton Cost . . .

IT COST 9c. a pound last year to produce cotton under demonstration methods in Piedmont, North Carolina, on the basis of reports made by J. M. Osteen, district supervisor of vocational education in Charlotte, N. C. . . . . Twenty-seven schools, represented by 419 farmers participated in the contest, each farmer planting five acres in cotton. Best record was made by John Cooke, 16-year-old high school student, who made 7.7 bales on his five acres at an average cost of 8.8c. per pound.

Silk Men Dine Hopefully . . .

A SPIRIT of optimism, tempered by warnings against overconfidence, characterized the annual dinner of the Silk Association of America, which

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The Textile Outlook

A CONSERVATIVE feeling of confidence is making itself felt that textiles can pull through the next few months on the basis of exchanging old dollars for new ones, and still be in the front rank of industries to benefit by the upturn in general business which statisticians expect will come before the end of the year. Textile raw materials with few exceptions seem well deflated and the low prices current seem a fair basis on which to postulate that 1931's volume in yards will exceed 1930's. Stocks have been getting low in many quarters and each day textiles are wearing out in domestic or industrial service. . . . Cottons are feeling the advantage of improved statistical position. Wool goods are gaining ground because buyers find spot goods scarce. Silks are better and are urging conservatism in restraining raw silk's advance. Knit goods feel the breath of spring business and find it most reviving.

The Business Outlook

THE first two weeks of the year have made a good showing. Steel production has come back from the holiday low point at about the usual speed, with a fairly large back-log of forward business. Building contracts continue well sustained for the season. Carloadings of merchandise are following their normal trend. Currency in circulation is no longer being disturbed by abnormal factors; check payments at the beginning of the year were larger than usual; and the volume of commercial loans is holding above seasonal expectations. Our index has risen fairly strongly from its bottom at 77% of normal to nearly 80%. All these things, together with steady commodity and stock markets, a stronger bond market, and some resumption of employment indicate that deferred replacement demand by consumers is making for some business improvement.

The Business Week

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brought 800 importers, weavers, knitters and yarn men together at the Hotel Astor, last Thursday night. . . . . Facing a good dinner, silk men forgot their dire experiences of last year, when they bought silk at supposed "bargain" prices, only to have the market drop to unprecedented low levels later. Speakers commented that spring prospects were better, thanks to the improved condition in the raw silk industry and to a stronger consumer demand for finished goods. . . . . Honor guests included outstanding figures in public life and in the retail as well as in the silk field.

Arbitration Council All Set . . .

THE GENERAL ARBITRATION COUNCIL of the Textile Industry is ready to function and advices are being sent this week to members of the associations represented on the council that facilities of the council are available to promote conciliation or mediation or if necessary to arrange arbitration respecting trade disputes. . . . . The Arbitration Council is composed of representatives from the following organizations: The Cotton-Textile Institute, Inc., American Cotton Manufacturers Association, National Association of Cotton Manufacturers, Association of Cotton Textile Merchants of New York, Textile Converters Association, National Association of Finishers of Cotton Fabrics and Textile Brokers Association. Walker D. Hines is chairman and Frederick A. Colt, secretary, of the council.

Plus Interest for 30 Years . . .

THREE DECADES ago, Homer J. Vernon, now residing in Madison, N. C., worked in the plant of the Proximity Mfg. Co., Greensboro, N. C., for one week, but left without waiting to receive an item of $2.75 still due him. . . . . After writing the mill recently, he is the recipient of a check for $7.50—the $2.75 plus 6% interest.

Prescribes Bitter Medicine . . .

HALF-TIME WORK and double wages, according to Victor M. Montgomery, cotton manufacturer, of Spartanburg, S. C., offers a positive solution of present difficulties in the textile industry. "We have been greedy and now we must take our medicine," he declared. "Of course, any medicine is bitter and it cannot always be taken in sips; in this case we of the textile industry must take a big dose. . . . . If we are to eliminate this problem (overproduction) then we must build up the purchasing power of the people—pay them, give them an opportunity to spend money more freely." Mr. Montgomery strongly advocates the complete abandonment of night operation in the textile industry, not alone for women and minors, but for men also.

Japan as Competitor . . .

AMERICAN TEXTILE industry is facing increasingly difficult conditions in the Orient, according to a report to the Pepperell Mfg. Co., Boston, by Charles K. Moser, chief of the Far East Division of the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. . . . . Exports to Oriental markets, already greatly reduced in recent years, seem certain to be cut still further, Mr. Moser reports, due to the development of the industry in Far Eastern countries themselves and particularly because of aggressive competition by Japan. The Japanese, he states, have developed the manufacture of cotton textiles on a basis of efficiency and economy probably not equalled anywhere else in the world and are extending their competition not only into western Asiatic and African fields, but into Great Britain itself.

"Merchandise-Minded" Wool Goods . . .

MANUFACTURERS OF woolen and worsted dress goods have about succeeded in selling a new idea to the ladies. Formerly the idea was that woolen and worsteds were to a more or less extent heavy and itchy materials, made along standardized lines. . . . . Proper designing and merchandising have done much to overcome prejudice and there will be still more woolen and worsted dress materials worn this spring. Current dress goods mill sales point this way.

Germany to Promote Cottons . . .

UNITED STATES has been the home of cooperative advertising campaigns. Attention has been attracted to the textile field during last year by campaigns promoting cotton, rayon, spun silk and mercerized yarn, to be followed in 1931 by a broader silk campaign. . . . . We have no monopoly on this form of cooperation. German cotton goods manufacturers will try it in 1931, but reports say that several mills hesitated to join movement owing to possibility of exerting unfavorable influence on rayon business, both fibers being used by these mills.

Formal gown of embroidered batiste and gingham sports frock with jacket blouse and hat of white pique worn with cotton mesh hose were among the styles presented by the Cotton Textile Institute at the annual spring style show of the Garment Retailers of America at the Hotel Astor this week

Live Mill Problems Discussed at Meeting

of Dyers, Bleachers and Finishers of S.T.A.

A well-attended meeting of men associated with dyeing, bleaching and finishing textiles in the South was held in Charlotte last week. Informative papers covering the handling of mixed-fiber goods, the use of colors for marking and identifying textiles, and the technique of water softening were read at this meeting. Report follows.

INTERESTING papers on water softening, the dyeing and finishing of mixed-fiber fabrics, and on colors other than for dyeing and printing, in addition to a splendid program of entertainment, featured the regular winter meeting of the Dyers', Bleachers' and Finishers' Division of the Southern Textile Association, which was held in Charlotte, N. C., Jan. 10. More than 200 members and visitors assembled at the Hotel Charlotte for the luncheon, afternoon session, and the banquet.

Paul F. Haddock, of Charlotte, southern manager for A. Klipstein & Co., and chairman of the division, presided over the meeting and acted as toastmaster during the banquet. Following the invocation by Marshall Dilling, Gastonia, N. C., executive secretary of the association, Mayor George E. Wilson, Jr., of Charlotte, delivered an address of welcome.

J. O. Corn, of Pacific Mills, Columbia, S. C., president of the association, responded to Mayor Wilson's hearty greetings. There was a pause in the instrumental music by Don Richardson and his orchestra while Walter C. Taylor, the association's secretary, introduced honor guests of the evening. These included Arthur M. Dixon, Gastonia, N. C.; F. Gordon Cobb, Lancaster, S. C.; Marshall Dilling, of Gastonia; and Carl R. Harris, West Durham, N. C., all past-presidents of the association. Dr. Ashley C. Chappell, pastor of the First Methodist Church, Monroe, N. C., delivered a humorous address.

"Putting Prosperity in Piece Goods," was the subject of a straight-forward talk by David Ovens, general manager, Ivey's Department Store, of Charlotte, who urged the textile mills to think ahead of the crowd and create something different in the way of fabric designs that will appeal to that relatively small group of "rich, sophisticated and slim" women who set the pace in styles. "Who cares whether you can make goods one cent a yard cheaper?" Mr. Ovens continued. "Get away from your competition by making something better and smarter than the other fellow . . . for it is new ideas that appeal to the imagination."

Operating executives were urged to spend their energies in the development of skilled labor, in the banquet address by S. L. Hayes, Hartsville, S. C., chairman of the Piedmont Section of the American Association of Textile Chemists and Colorists. He declared that southern labor is the equal of any in the country and needs only to be properly trained. His message to textile men was to find out the facts, to train their subordinates intelligently and consistently, to have a thorough grasp on their own jobs, and to prepare for future developments.

The future of any business or corporation, Mr. Hayes continued, depends upon the adequate training of men as they come along. He urged superintendents and foremen to explain to their operatives the principles behind the various operations and to encourage them to read the textile journals and study reliable text books.

Water Softening As Applied to Textiles

THE first technical paper presented in the afternoon session was on "Water Softening as Applied to Textiles," by S. F. Alling, sales manager, Hungerford & Terry, Inc., Clayton, N. J. His discussion, in part, was as follows:

Water softening has been a progressive requirement. Twenty years ago water softeners were seldom installed for waters of less than 8° of hardness. The softeners used at that time were devices requiring lime and soda in the process As a result, waters of 6° of hardness were classed as soft, and waters below 4° of hardness were classed as very soft.

Then the Zeolite softener appeared. This was a filter which instead of being filled with sand was filled with zeolite, a substance which possesses the property of extracting lime from the water and when exhausted can be regenerated with a solution of common salt. Among the advantages of a zeolite softener are the following: The water is made 100% soft; no measuring of chemicals is required in this process; and fluctuations in the degree of hardness of the raw water are automatically met by this apparatus. Next came the discovery that the great greensand beds of New Jersey possessed water softening properties and that this greensand was a natural zeolite, which after proper treatment could be made to compete with synthetic zeolite.

In operation the water is passed through the softener just as through a filter. As it passes through the zeolite all of the lime and magnesia, although in solution, is completely retained in the zeolite bed and the water emerges from the softener 100% soft. When the zeolite bed has retained all of the lime and magnesia it can hold, operation is suspended

for about half an hour while brine is forced through the zeolite bed and the byproducts of regeneration are washed out. The softener is then again primed for another run, and this process can be repeated for years without the zeolite losing its exchange capacity or softening power.

Colors for Marking Goods in Mill

CHARLES P. Walker, of A. Klipstein & Co., Charlotte, N. C., next presented a paper on "Colors Other Than for Dyeing and Printing," in which he outlined the application of color to cut marks, lot numbers, bleachers' blue, stamping ink, fugitive tints, etc. Mr. Walker's paper, in part, was as follows:

The first place where color is used in textile manufacturing is at the slashers for cut marking. Cut marks are applied to the warp at specific intervals for the purpose of checking production, reckoning costs, and figuring wages of operators. After the goods leave the gray mill, these marks serve no purpose and should not be confused with head-ends, tail-ends and trade marks, which remain permanent throughout the bleaching and finishing processes.

The first consideration in the selection of a color for cut-marking purposes is: Will it show on the woven fabric? And second: Will it mark off in subsequent operations of bleaching, dyeing, or finishing of double cuts where at least one cut mark is left in at the weaving mill? On gray goods, to be subsequently bleached, it is obvious that the cut mark should wash out completely without staining any other part of the goods. If the goods are one-fiber fabrics, insoluble pigment pastes would appear to be the proper thing. Also acid colors in starch can be and are used. In the case of colored fabrics containing delicate shades to be wet finished from the loom, the use of a permanent mark, such as a cellulose lacquer, is well worth considering.

Head-end and tail-end marks are put in goods for the purpose of checking stretch and also, in the case of valuable goods, to insure that original lengths are returned in full. These marks must be permanent, and are either woven in at the loom or sewed in before finishing. Use of cellulose lacquer would simplify the application of these marks and thereby reduce finishing costs. In the case of multi-fiber fabrics, the use of dyes for a distinctive-color cut mark must be approached with care if the goods are to be wet finished, as such color may be transferred and actually dye one of the other fibers. Here again cellulose lacquer would appear to be the best bet.

The marking of lot numbers on piece goods is another point where color might be used. Again I present the thought of cellulose lacquers, with their brighter shades, as a medium for marking lot numbers.

If goods are to be finished or dyed "from the loom," tar cannot be used as it will mark off on the rolls, causing repeat marks. Crayon is often used; but the wrong kind might cause trouble. The only safe crayon for use in marking fabrics is the chalk or talc variety.

Use of trade marks on textile fabrics may be roughly divided into two classes. First, those markings put on gray goods for export, which consist of designs or names applied with ultramarine. Secondly, goods trade marked for merchandising purposes. Such marks must obviously either wash off easily or be permanent. Nothing in between should be considered; otherwise the mark loses its value. Colors used for trade marks, other than permanent, should be of such a nature that they will not act as a dye on any of the constituent fabrics. This particularly applies to whites or goods finished a delicate shade. Until quite recently black was the only color which stood up under all conditions when used for permanent trade marks, but the demand for vari-colored trade marks has brought attention to various colors for this purpose. So far as the writer's experience has gone, only the cellulose lacquers have been satisfactory, and then only when made with suspended pigments.

It is with a great deal of timidity that I approach the subject of staining yarns for identification purposes. The increased use of acetate fibers, and the many different rayons, alongside animal and vegetable fibers, especially in the hosiery business has raised a bewildering mass of problems. Each different fiber, and in fact different counts of the same fiber, can be readily identified only by each being a different color. It is essential that the colors used for staining yarns must be of such a nature that they can be completely removed without any permanent transfer of color to one of the other fibers. If acid or basic color is used to stain rayon or cotton, the silk and wool will permanently receive the color when it is released in the wash bath. Even the apparently simple problem of staining cotton yarn to be knit with rayon is complicated by the use of certain softeners which act as a mordant and fix colors which otherwise are easily removed with cold water. One particular example, I would mention, of this difficulty was in staining mercerized yarn for identification. Violamine had been used without complaint for quite a long time—then a complaint was registered that the color would not wash off the yarn. Investigation of the problem disclosed the fact that the manufacturer was using a softening oil which was acting as a mordant, and the Violamine was dyeing the yarn. It was only at considerable expense that the color was finally removed from the yarn and Azo Rubine applied in its place. This color did not become fixed on cotton under the conditions that existed and was found more suitable.

Cellulose-acetate fibers attract colors even when not in solution, and, therefore, suspended insoluble pigments do not always fit. I leave it to some chemical research body to evolve colors that do not dye anything, and, in the meantime, humbly offer as a solution of this problem, the use of easily dischargable azo colors and a preliminary stripping in a hydrosulfite bath before dyeing. This suggestion is made for cases where the yarns are sold from stock and where it is not known what other fibers will be used with them.

Probably the most important use of color, other than for dyeing and printing of textiles, is the use of bluing on bleached goods. In the bluing operation of cotton goods it must be borne in mind that we have three major products to blue: First, the fabric itself; second, the sizing material; and third, in the case of filled goods, the filling, which consists of talc, clay, etc. The selection of bluing for a complete job involves considerable thought. For instance, a bluing for cotton may not be suitable, from a cost standpoint, for bluing clay or talc. Due thought must also be given to acidity and alkalinity of any compounds with which the blue comes in contact. In the finer grades of goods the fabric is first blued at the water-mangle and then a suitable bluing is mixed with a sizing paste—consideration being given to the pH condition of the materials involved.

Briefly, selection of bluing is made from four types, each having characteristics favorable to different conditions. (1) Ultramarine blue. This product is not susceptible to alkalis; but is decomposed by acid. (2) Prussian blues. These blues have the great objection to being sensitive to alkalis, and inasmuch as many finishing compounds are on the alkaline side, Prussian blues do not completely fill the bill. (3) Acid blues, or blue violets. These are acid colors which do not dye the cotton, are completely soluble in water and, therefore, present the simplest method of bluing cotton goods. They are not, however, particularly fast to storing and light. (4) Vat colors. These are the most important blues of any,

and, if properly prepared, no difficulty should be experienced in their application. It will be well to remember, however, that certain ingredients in the sizing tend to reduce the colors which, of course, are then absorbed by the cotton and redeveloped by exposure.

Finishing Rayon-Cotton Piece Goods

AN interesting technical paper, on "Finishing Rayon and Cotton Piece Goods," was presented by Chester W. Eddy, of Brandon Co., Travelers Rest, S. C. In his discussion of the recent developments in finishing fabrics containing rayon, Mr. Eddy said in part:

In finishing rayon mixtures it is necessary to be careful of the speed of the machine which you are operating, because excessive speed is damaging to the cloth. The same is true in handling the cloth through a wooden-roll starch mangle with a heavy set. The best results are obtained with a starch pad equipped either with one brass and one rubber roll or with rubber rolls. The processes of finishing these constructions, in a measure, are the same as with cotton. For instance, you would desize for the same reason you desize cotton. In singeing, however, rayon will not stand the heat as well as cotton. Therefore it is necessary to singe with a gas flame, using not over three burners—two on the face, and one on the back. Singeing is necessary to retain the luster in the finished goods, otherwise the fuzz will cover up the rayon and prevent the natural luster from showing.

In bleaching the writer prefers the peroxide bleach; first, because of quality of white obtained; and second, because the goods have very little handling with the danger of tendering the fabric eliminated. The speed at which the kier is loaded should be not over 100 yd. per min., as excessive speed with the goods in a wet condition will tend to fray. After bleaching, the goods may be run from the kier through a squeezer containing cold water, over a scutcher, and dryed on the cans continuously.

Your goods are now in a condition to dye through a pad, jig, or continuous dyeing machine, with either direct or vat colors. Rayon has a great affinity for dyestuff, covers well, showing up very bright. If your temperature is too high, you will find the rayon taking the dye a little faster than the cotton, which to a small degree will give you a two-tone effect.

The writer has found by experience that the finishing materials are best added to the dyebath, and a great many times no finishing starches or gum are necessary. In fact, starches should not be used in rayons, as they have a tendency to cover up the luster. A transparent gum for body is sometimes necessary, using olive oil or some other transparent oil to soften.

The goods are finished over a tenter frame or Palmer machine, depending on the finish required. In the case of a cotton tenter, notice should be taken as to the amount of heat, and the speed should be about 55 to 60 yd. per min. Too slow speed will bake the finish, killing some of the luster; and, of course, too much speed will not give the goods time to dry. In case the fabrics need to be broken or if a smooth face is necessary, one or two nips on a light calender may be given. Also a rubber-covered expander works very nicely in front of the calender to retain the necessary width.

We have found by experience that the best results acquired in finishing rayon mixtures are obtained with the least amount of handling, using as little heat as possible.

Various constructions have to be handled differently; rayon warp goods, either twill or sateen weave, cannot satisfactorily be put into rope form, as the tendency would be to crack the face. Heavier twills and sateens—which, of course, carry more moisture—should be extracted before the final finishing process. These fabrics should be bleached if necessary on the jig. Roller-bearing jigs should be used on rayon to relieve the tension. In fact, tension should be watched very carefully in all processes. Rayon crepes should be dyed in the rope form wet in creels for the best results and extracted and finished in a crepe dryer.

Dyeing Mixed-Fiber Fabrics

AFTER speaking of the problems involved in scouring fabrics containing more than one fiber, Dr. E. W. Pierce, of Ciba Co., New York, in his paper on "Dyeing of Mixed-Fiber Fabrics," outlined the methods used in the production of solid shades and cross-dyeing on various types of fabrics. Dr. Pierce's discussion follows, in part, herewith:

The dyeing of mixed-fiber fabrics assumes two phases: first, the production of solid shades; and second, the production of multi-colored dyeings. In dyeing solid shades on cheap goods where fastness is not a paramount consideration, we have a large series of substantive dyes which will give, in themselves, fairly good solid shades on most of the fibers, excepting acetate yarns, but need a small amount of shading with neutral-dyeing acid dyes to adjust the animal fibers to the shades of the vegetable fibers.

Mixed-fiber dyeing may be raised to a much higher plane, and the ultimate value of the goods increased by the use of fast colors. There are a number of very fast substantive dyes which will dye all vegetable fibers, excepting the acetates, and leave the animal fibers unstained; and there are many neutral-dyeing fast colors which will dye animal fibers under the same conditions and leave the vegetable fibers undyed. Use of both these classes of dyes on a mixed fiber fabric is not dependent on variations of temperature, and the dyer will find that he is able to make a good match of the required shade much more easily than when the dye shifts from one fiber to the other with each change of temperature.

Today we have a problem that is none too well solved and that is where there exists a mixture containing no animal fibers at all, but various chemical and physical modifications of cellulose. Starting with ordinary cotton and following with mercerized, then nitrocellulose, viscose, and cuprammonium, we have a series of cellulose fibers which differ widely in their affinity for the dyestuff and sometimes will even dye with a wide variation in shade.

In most cases where fibers are shown fairly evenly covered, it will be found that one or another has the dye only loosely affixed and is in the nature of a stain rather than a true dyeing. The best results are obtainable in light shades without the addition of salt until the cotton has filled up. Medium shades require no salt whatever and in dark shades it is always difficult to fill cotton in the presence of any of the rayons.

Acid dyes in an acid bath are sensitive to the temperature and the color will shift to either fiber in a short time as the temperature changes. A safer and better way of dyeing these mixtures is by the use of the fast, neutral-dyeing colors which are also better adapted for later discharge printing.

There are now on the market a number of fabrics made of acetate yarn and cotton, acetate yarn and rayon, and acetate yarn and pure silk. It is customary to dye such goods on a jig, as thus a shorter liquor may be used and the expense of dyeing kept lower. Regardless of fiber combination, the acetate yarn is dyed first, keeping the temperature below 175° F., then matching of other fiber to the acetate is a simple matter.

Multi-color dyeing in general is much easier than dyeing a perfect solid shade on mixed fibers. We have available many dyes which will dye one fiber and leave the others unstained, excepting of course the various rayons and cotton. The very contrasts which were so much trouble in dyeing solid shades are often utilized to produce tone effects; and as the dyer is often permitted to make the first line of samples, he has only to duplicate his own work, which is an important factor.

Woolen and worsted goods are often dyed with silk effect threads. In such cases you must obtain the dyestuffs recommended for the purpose by the manufacturers; some are acid dyes, but many are afterchromed colors. These need a special caution; the action of the chrome must be complete, because if the proper color change has not been brought about in the dyebath or if much free chrome is left in the goods, there will be a further change when subjected to the heat of the dryer or the finishing processes, and either the whole shade will change uniformly or result in clouds or shaded goods.

When we consider goods made with acetate-yarn effects, we have a new series of problems. We may obtain cotton dyes which do not stain acetate yarn, real silk, or wool; and we may have wool or silk dyes which do not stain acetate yarn, cotton, or rayon; but dyes for acetate yarn will slightly tint cotton and rayon and more strongly tint wool and silk. The cross tints may be removed and the grounds cleared if necessary, but in many cases the ground color will be darker than the effect threads, so the material may easily be dyed over without giving it further thought. It is always well to dye the acetate in as short a bath as possible to economize dye. The attempt to shade on an effect thread with the same percentage of dye as was used to dye a skein of 100% acetate yarn often ends in failure, and a complaint against the dyestuff. We must consider that the effect threads are but a small percentage of the total fabric, and that although the dye has no real dyeing affinity for the other fibers, yet it is absorbed by them mechanically and kept out of circulation. Our only chance of getting the full value of the dye is to prolong the time or use more color.

Finally, there is the consideration of the dyeing of fibers for use in mixed fabrics, which we generally call cross-dyeing. There are several classes of such dyeings: deep shades, like sulfur black on cotton, which is to be over-dyed in wool goods; and finally resisted threads that have received special treatments.

Many classes of fabrics are made up with certain cotton threads already dyed with sulfur black. These are not only for designs, but may form the backs of wool, silk, or mohair plushes. There has been one great objection from the start: sulfur-black dyeings, when acted on by acids, is especially inclined to become tender some time later. This is said to be due to the further oxidation of some of the sulfur in its composition, so it is recommended to complete the oxidation of this dangerous part of the sulfur by giving it an energetic oxidation with chrome and acid as soon as it is dyed.

Cotton dyes for cross-dyeing may be of the better class of developed colors, sulfur colors, vat dyes, or naphthols.

Silk effect threads, whether for resist or not, must take into account the fact that the goods will have to stand scouring or a light milling before dyeing, hence the regular acid dyes are not suited. Fast neutral-dyeing colors which will stand milling or vat dyes of the indigoid class will give the best results. Silk is resisted; and wool may be put through the same process by first dyeing it with a fast color and then saturating the fiber with tannic acid, which is then fixed with tin crystals. Now as this tin tannate, especially after it has contacted with alkaline soap, has a rich orange tan color, it is evident that while it would not show much influence on an orange, gold, or deep red shade, it would make a very poor showing of a royal blue or violet. If a definite shade must be furnished, it is not possible to use enough resist to fill all the requirements, while if fully resisted the shade will be flat. This difficulty with resisted silk will probably be solved by the further use of acetate yarn, immunized, and amidized cotton.

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Year's Shipments of Cottons Exceed Production

FOR the first time since 1926, shipments of cotton goods were in excess of production during 1930, according to the December report of the Association of Cotton Textile Merchants of New York. The ratio of shipments to production last year was 103.4% as compared with 98% in 1929; 98.4% in 1928 and 97.8% in 1927. Stocks on hand at the end of 1930 were substantially less than at the end of the two preceding years.

Production during December amounted to 234,052,000 yd., or at the rate of 46,810,000 yd. per week. This was 23.2% less than December, 1929, and 9.4% less than November, 1930.

Shipments during December were 226,951,000 yd., equivalent to 97% of production. Sales during the month were 182,656,000 yd., or 78% of production.

Stocks on hand at the end of the month amounted to 363,962,000 yd., representing an increase of 2% during the month. Unfilled orders on Dec. 31 were 288,956,000 yd., representing a decrease of 13.3% during the month.

During the year 1930 stocks on hand decreased 97,051,000 yd., a reduction of 21%. This is a clear indication of the success which has attended the efforts of many mills to keep their production in line with the reduced demand during 1930.

Deering, Milliken Unemployment Benefit Plan Cited as Sole Textile Example

The unemployment benefit plan developed in the finishing plants of Deering, Milliken & Co. was described in TEXTILE WORLD several years ago. Its progress to date is summarized in the attached digest of report prepared by the Industrial Relations Counselors, Inc.

DEERING, MILLIKEN & CO. is one of the few industrial concerns in the United States, and the only one in the textile industry, which has experimented with an unemployment benefit plan for its workers, according to a comprehensive study of unemployment compensation just completed by the Industrial Relations Counselors, Inc., 165 Broadway, New York. The report also reviews the experience encountered with the one trade union unemployment plan in this industry which was in operation for about a quarter of a century.

The Deering, Milliken & Co. plan has been tried out in the company's plant, the Dutchess Bleachery, Inc., plant at Wappingers Falls, N. Y., and in its works at Garnerville, N. Y., the Rockland Finishing Company, with varied success, the plan being still in full operation in the former while it has been discontinued in the latter establishment.

The company at present employs approximately 500 wage earners in each of the two establishments, the Dutchess Bleachery, however, has suffered about 10%, and the Rockland Finishing Co. more than 35% decrease in employment between 1920 and 1929. The work in both plants being closely allied to the textile production industry, its continuity, and therewith, its employment conditions are largely dependent upon conditions in textile production.

A frequent motivation in the establishment of unemployment plans is to promote stabilization of employment by making the cost of unemployment benefits a penalty on management and, in some instances, to reduce labor turn-over. In the case of the two Deering, Milliken & Co. plans, however, the principal motive seems to have been purely that of promoting good will by easing the hardships of lay-offs among its workers. A sinking fund was created in each plant out of which compensation for lost working time was to be paid. When the two plans were put into operation, in 1920, both the companies in question were making unusually large profits, a circumstance which in part accounted for the generous provisions for lay-off compensation.

The Dutchess Bleachery Plan

The unemployment compensation plan in the Dutchess Bleachery was adopted in 1920, shortly after the company had entered into a profit-sharing basis with its employees. A sinking fund was established to guarantee a minimum wage of 6% on the invested capital, equal to a sum first set aside for dividends. Out of the net profit remaining, further sums were to be set aside to raise the wage sinking fund to $85,000, to be drawn upon by employees in times of unemployment.

Every wage earner, whether on piece work or on a time basis, who has been with the company for 12 months, is eligible for unemployment benefit, and is considered "unemployed" when the department in which he works is closed temporarily or when, due to no fault of his own but due to the exigencies of the business, he has not worked a stipulated number of hours per week. Half pay is given for unemployed time and in no case does an employee receive less than 24 hours' full pay per week as long as the fund holds out. When working less than 13 hours a week, employees are paid on the basis of half-time for 48 hours, or full pay for 24 hours; when working over 13 hours, they receive full pay for the time worked plus half the difference between that and full pay for 35 hours. All half-time pay is based on average weekly earnings for hour-workers, and an average of the previous month for piece workers. To conserve the fund, it is provided that whenever the unemployment fund falls below $50,000 for the approximately 500 wage earners, no compensation is paid for the first 13 hours of working time lost. Overtime is not deducted for purposes of computing unemployment compensation.

The Dutchess Bleachery Co. fund started in the boom year of 1920 with an original contribution of $63,983. Contributions during the rest of 1920 and through 1921 and up to March, 1922, totaled less than $30,000, and no contributions have been made since then, owing to the general business depression following in 1921 and 1922 and the decline in the textile industry in recent years, there having been no surplus after deducting the prescribed amounts for dividends and the capital sinking fund. Increasing profits in 1929, however, indicate a likelihood that contributions will be resumed in the future.

The benefits paid, in comparison with the weekly wage, have been small, averaging little more than $2 per week in only three years, 1923, 1925 and 1927 out of the 1921-1928 period for which comparable data are available. Average weekly wages during this period amounted to slightly over $22. Considering the generous terms of the plan, however, particularly as regards waiting time and eligibility, it is a fair assumption that average time lost per worker was small. Depletion of the fund in 1922 resulted in a change of the plan, 35 hours being adopted as a basis for computing compensation due instead of 48 hours. If the average amount of weekly benefit paid out was larger in the years 1923, 1925 and 1927 then in 1920, 1921 and 1922, when a more liberal compensation basis was still in effect, this was due in part to an increase in weekly wages, which affect the benefit rates, and in part to the fact that the length of lay-offs was greater in the latter years. The total amount of benefits paid in relation to the total payroll was largest in the first few years of the (*Continued on page 74*)

What the Wage Fight in British Cotton Industry Is All About

By T. Guthrie Oliver

MANCHESTER, ENGLAND.

THE Lancashire cotton trade is at the present time in the grip of a struggle over wages. The ultimate outcome cannot be foreseen but it is obvious to the merest outsider that one of two things will eventually have to happen. Either the basic rate of wages will have to be lowered or the output per operative will have to be increased. The second alternative is the most pleasant to contemplate and as there are obvious ways in which this can be brought about definite steps have been taken in the matter.

The Lancashire weaving trade is in an extraordinarily large number of hands. There are hundreds of weaving establishments in different parts of the county engaged on cloths for the various markets of the world. The industry has for long worked on a unique weaving price list which was applicable to four looms per weaver but which is quite out of date to-day. There is probably no other cotton weaving country in the world which has any price list for wages approaching in complexity that operated in Lancashire. Nevertheless both masters and operatives have come to understand the list, and, taken on the whole, it has in the past worked very well.

A lock-out of 25,000 weavers in Burnley, England, Saturday of last week, followed a strike of 14,000 and was regarded as a step in a trade war which may involve 200,000 weavers and even spread to the spinning industry. The attached article explains the basis of the struggle.

There are countless extras in the list and the percentage additions have also been made to apply to these extras so that where fine counts or rayon are being spun the wage paid to the operative is too high and actually out of all proportion to the extra work entailed. Improvements in yarn construction and in machinery have in many respects rendered the list obsolete. The matter has been further brought to a head by the steady decline in the cost of living.

Perhaps, however, these matters might have been overcome had it not been for the fact that the arrangement by which the number of looms per weaver was limited to four was quite uneconomic under modern conditions. To people on the other side of the Atlantic it may, at first thought, be peculiar that automatic looms are not more easily adopted. No one would deny that there is room for more automatics in Lancashire but this is scarcely a time when employers are looking to spend more capital. Moreover there are a large number of cloths woven in Lancashire which could not be done on automatics.

There are, however, many reasons why there should be a removal of the barrier set up by the trades unions against the employment of more than four looms per weaver. The employers set up a committee and after much consultation decided upon a new list which in a sense revolutionized the system of payment by basing same not upon the cloth length but upon the number of picks. There are set out scales of wages to be paid for the working of six, eight and ten looms per weaver. These proposals were submitted to the Weavers' Amalgamation with a request that the two sides should get together to discuss details such as the rate of payment for sweepers, carriers, etc., and many other matters which obviously could only be so decided. The weavers promptly declined the offer and refused even to discuss the list which they regarded as revolutionary and likely to cause much unemployment. The employers arranged for the system to be introduced gradually, however, and the risk of unemployment being increased even temporarily was in actual fact reduced to a minimum.

The weavers then adopted the attitude that the employers had made no arrangements for either a fall-back or a minimum wage. The fall-back wage was in their opinion necessary to insure the use of good quality yarn and the minimum wage was required to combat the possibility of an employer having started the six or eight loom system gradually falling back on to four looms and then paying wages on the new pick system which would result in lower earnings by the operatives than formerly. The employers' reply to this was that if four looms were to be worked then the present wage system would apply. This in fact was their provision for a minimum wage for the operatives.

Thus the matter goes on but it is clearly obvious that the system will have to be brought into force though perhaps with certain modifications. The employers offer to arrange to set up a permanent committee for the settlement of disputes but it is to be feared that even yet the operatives have not understood the position. They still feel that it is an indirect attack upon wages.

The savings which have been effected by the introduction of six or eight looms per weaver are proved to be considerable and the employers have offered to lay all the details before the operatives if and when they are prepared to meet. In some cases it is said that the saving is as much as 25% on production costs. The actual remuneration to the worker will in most cases be considerably more under the new system and the claim that physical strain will result in many of the workers being forced to drop back on to four looms is probably grossly exaggerated though the employers have offered every concession in this direction.

It is true as we pointed out before that the present rates for some of the fancier cloths are absurdly high and out of all proportion to the extra work involved and the new list goes some distance towards leveling up rates of payment except where (*Continued on page 77*)

N.A.C.M. Forums

Complete Season's Discussion of Yarn-Manufacturing Technique

IN the November and December textile forums, held at the Chamber of Commerce Building, Boston, under the auspices of The National Association of Cotton Manufacturers, the technique of carding and spinning was considered, the last meeting completing the season's discussions of yarn-manufacturing problems. Considerable delay in reviewing the forum meetings is caused by the association withholding its reports until some weeks after the meetings have been held.

The first topic brought up for discussion at the carders' forum was the mixing of cotton. One carder recommended "putting down" 20 or more bales containing five marks of four bales each. Another recommended using 15 or 20 bales, rotating the marks as they are put into the opening machine, the number of bales being unimportant if they are put into the opener in the proper order. He believes that a modern hopper will hold nine bales of cotton at one time. Another speaker expressed his belief that a large mix, besides blending the different grades, gives the cotton a chance to open up and condition.

A different viewpoint was taken by one carder, who believes that if the cotton is classified properly on the books previous to making the mix, a large mix will not be necessary. He pointed out that many mills do not have sufficient room for a large mix. He believes that a small mix of four or five bales is particularly proper where shipments of the same marks come from different sections of the country.

"On our Mississippi cotton," said another carder, "we are using between six and eight different marks and putting down between 20 and 25 bales, depending on whether we get a shy bale or all good bales. We never go under 12 bales in our Sak mix, and never go under 16 bales in our Mississippi and Louisiana mixes. In our Sak mix, we see that we get in at least four marks; in our Mississippi, at least six to eight."

"Putting cotton down is really not necessary to mix short staple," declared another speaker, who remarked that he has room to put down 100 bales if he wishes. "If you are taking proportionate amounts from each bale, that is good while the bales last, I should think. But with the long-stapled cotton, Arizona and Sak, I prefer to put a mix down before we begin to use it."

Opening Machinery

In discussing opening machinery, one carder complained that he is having trouble with tangled cotton from his Murray and Crighton openers. He believes that these machines prevent his obtaining good cleaning on his finisher beater. Another stated that he is having trouble with his cotton curling and wrapping around the center shaft in his Murray opener. He recommended the use of the horizontal cleaner. A third declared that in his opinion the Crighton is a good beater, even for Pima, Sak, and Arizona, provided the machine is not overcrowded. Two speakers expressed satisfaction with the Murray machine—one because it takes out a large amount of sand, leaf, and dirt and does not seem to injure the cotton, and the other, because it seems to be particularly adaptable to shorter staples, waste especially.

A carder who is using two Crightons for 1¼-in. cotton stated that he once attemped to eliminate curling and the small white specks in his stock by putting the cotton through two horizontal cleaners, but found he could not get good results by that method. He is contemplating taking out one of the Crightons and putting in a Buckley. He believes that curling of the cotton in Crighton openers can be done away with by cutting down the intake or the amount of cotton, or by increasing the speed of the cotton through the machine. In his opinion, too much beating is responsible for neps in long-stapled cotton. One speaker blames crowding of the Murray and Crighton openers as being responsible for curling.

Fan Draft Important

"The fan draft from the bale opener on," remarked one carder, "has everything to do with putting cotton through machinery, and I have had the experience of putting through some of the longest cotton grown, using the Murray and the Crighton, without having any trouble from curling. But you must watch the draft speed. Take Arizona cotton; it has to go through some machinery to get the dirt out, or you are going to crowd your cards and you cannot get it out at all. But take our good class of Sak and Sea Island, which do not have much dirt in them; you can do anything with them in the picker room. My idea on that kind of cotton is that, if there is practically nothing in there, why try to take it out? Why put it through the beaters and probably make it worse? I think if you use proper fan speed on your Crighton and Murray, you should get out any small neps."

It was one man's opinion that a Kirschner beater should not be used on cotton over 1⅛ in. in length, because neps will be caused unless the beater is watched constantly and changes in adjustments and settings are made when needed. When cotton contains practically no leaf or dirt, there is no need of putting it through Crighton or Murray openers, according to one opinion. This year's crop in Mississippi was said to fall in this classification.

One carder expressed the belief that the Murray cleaner gives a more thorough mixing than the Crighton. Another recommended the use of a Buckley type of cleaner hooked up with a bale breaker for short-stapled foreign cotton. The use of a water-filled U-tube in the side door of the picker for determining the amount of fan draft was recommended by one speaker, who stated

that he has found an inch of draft to be satisfactory, as nearly as he can recall.

A method for allowing for regain in the weight of laps was described. The concern represented by the speaker made a thorough test in its five mills over a period of about three months, finding the regain in the cotton at various precentages of relative humidity by means of drying ovens. It charted the results of these tests on its recording hygrometers, so that it would know at any time what weight a lap should register on the scale if it contained the correct amount of cotton. Another speaker said that he obtained similar results by means of an Aldrich indicator. Variations due to the length of lap are eliminated, the first speaker said, by the use of an accurate lap-measuring device. In the opinion of one carder, it is more desirable to maintain the moisture regain at one point than to make corrections.

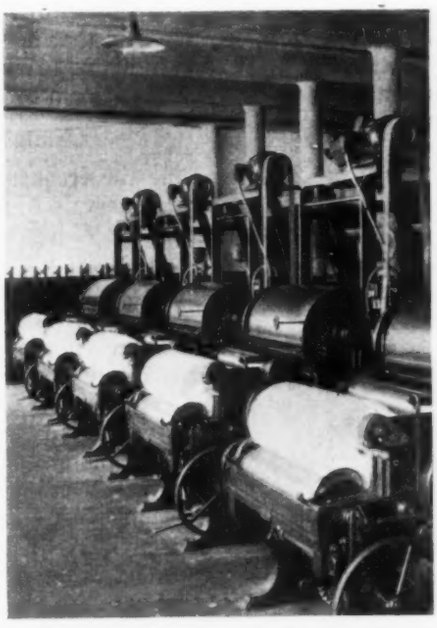
One-Process Picking

Considerable time was devoted to a discussion of single-process picking. Although one speaker said he had been told that the finished yarn is not as clean as from the two-process system, many of the carders who have had experience with the one-process system spoke highly of it. Advantages mentioned included elimination of the compressing action on the stock, low variations in weight of lap, reduction in number of operators required, and stronger and evener yarns. One speaker expressed the belief that a mill which is equipped with good picking machinery will not find it worth while to change over to the one-process system, but that mills buying new picking machinery would be very foolish not to adopt it.

The representative of a mill which is making 140s and 160s combed 2-ply hosiery yarn from Sak, mercerized, stated that he has found one-process picking satisfactory, although to make it so he found it necessary to revamp his entire mixing and opening equipment.

With reference to beater blows per inch, one carder said that his beaters averaged 48; another, 50; and another, 54. The use of Buckley beaters reduces the number of blows very appreciably, according to one speaker. He uses Buckley beaters on long-stapled cotton; and blade beaters on dirty short cotton. It was suggested that when the blades of a Buckley beater become dull the beater be turned around. The use of Buckley beaters in the finisher picker was reported.

The chairman asked what is done with rejected laps on the one-process system. One carder replied that when he changed over from three-process to one-process picking he retained one finisher picker and that he runs all rejects on that picker for two hours every week and then runs the finished laps on special cards, where they can be controlled and mixed carefully. He finds that putting the rejected laps back into process causes uneven numbers.



Picking received special attention in the carders' forum

Another speaker reported that he tears up his rejected laps and throws them into a small machine just behind a large feeder, which can be regulated to give any desired weight. Another simply tears up his rejected laps and throws them back into process. One man employs a roving waste machine to handle the rejected laps, this machine being automatically controlled by the picker. It was suggested that rejected laps might be weighed and classified, run through heavy and light cards, and then doubled intelligently. It was also suggested that this doubling might be done on a picker.

On Colored Stock

The representative of a mill which is running colored stock stated that he has had no trouble with one-process pickers, except when a color mix is desired. In that case he prefers to operate a finisher picker rather than mix the colors previous to opening.

Apparently only one mill represented at the meeting is using the Kirschner beater, but it finds it satisfactory for running $1\frac{1}{8}$-in. cotton at a rate of 1,350 r.p.m. Objections raised to this type of beater by some of the carders included the making of neps on long staples. It was reported that in one mill the speed of the Kirschner was reduced from 1,180 r.p.m. to 920 r.p.m. with beneficial results in cleanliness and breaks. The carder who is running his Kirschner at 1,350 r.p.m. reported that reducing the speed to 1,200 r.p.m. gave a poorer break.

The discussion next turned to licker-in. speeds and card drafts. The chairman declared that he preferred a licker-in speed of around 400. A carder referred to a test on 40s yarn reported in TEXTILE WORLD, which showed that reducing the draft from 140s to 100s increased the breaking strength approximately $6\frac{1}{2}$%. The chairman stated that he has found a draft of 120s to be desirable for quality work. He added that in his opinion a 12-oz. lap is sufficiently heavy "to card almost anything."

Cleaning Discussed

The carders' forum closed with a discussion of cleaning. "As far as the motors are concerned," said one carder, "we really have to clean them every day. But on the ceilings I would rather see the lint up there undisturbed than have it brought down into the work. Saturday morning we shut down and give the men an hour and a half to clean thoroughly. We run the cards bare and take the cans away from them, take the coilers up, and leave them up until Monday morning, ready for oiling."

One of the first topics discussed at the spinners' forum was the dropping of ring rails on spinning frames. The chairman reported that, although he has found more drag on the yarn when the rail is down, he has not noticed any difference in breakage; and he believes that this is due to his having replaced the straight bobbin by a bobbin with a cone base. Any loss in the amount of yarn on the bobbin due to the cone is more than offset by the increase in traverse, which permits a gain of 40 to 50%

in yarn. He has dropped his rail 1½ in. and has not found it necessary to drop his cylinder, although he realizes that this would be necessary on some frames.

One spinner declared that he has tried dropping his ring rail, but found that he had more bands cut by the whorl. Another reported that he has dropped 22 frames, not primarily to gain production, but for winding purposes. He has had good results and has increased the amount of yarn on a bobbin about 35%, although his breakage is not quite so high.

The question was raised as to whether spinners should be required to clean their frames. One spinner reported that he has found that cleaner yarn results from using cleaners when running 20 sides of warp. Another stated that his spinners run 18 sides, about 2,000 spindles, and clean the top clearers, roller beams, and creel, and that roller girls do the rest. In another mill, according to the statement of its representative, spinners run 20 sides of warp, or 2,040 spindles, and do only the spinning, creeling, and wiping of thread boards, cleaners taking care of the rollers, creels, and roller beams. These cleaners take care of 30 frames or 60 sides. In another mill the cleaners have 30 sides and clean rolls, creels, etc.

Spindles per Doffer

The spinners were asked regarding the number of spindles which a doffer can handle. One replied that in his mill on Draper bobbins, 36s to 50s filling yarn, doffing four times a day, the doffer takes care of 3,000 spindles on 14 frames. Another spinner replied that about 10,000 spindles in an 8¾-hr. day is sufficient for one doffer, explaining that he was not referring to the number of running spindles, but to the number of spindles doffed, whether on one, two, or three frames. He said that his warp doffer doffed up to 55,000 bobbins per week; and his filling doffer, up to 47,000 per week.

The chairman inquired as to whether those plants which have adopted the Barber-Colman equipment find their doffing retarded. The representative of such a mill replied that that is not the case. "We had to change the bobbing on top," he added. "We have made a sort of bottle-neck arrangement on top of the bobbin. We do not have much bother with snarly yarn on the top."

Roll Coverings

The subject of cork spinning rolls was brought up. One speaker declared that he had had them in four years, during which time five to eight buffings per roll have been required. He figures the average life of a cork roll to be 2½ to 3 years. He finds no difficulty in mixing the buffed rolls with the others and declared that a change of yarn numbers from 20s to 60s does not make a roll change necessary. A test conducted some years ago by Stephen E. Smith at Lowell Textile Institute was cited to show that cork rolls give less clearer waste than leather rolls.

The chairman reported that in nine months on 97 frames he found that cork rolls afforded a saving of about $1,400. One spinner recommended mills buffing their own rolls, as he finds it costs about 1c. per roll as compared with 5c. charged by outsiders. In the case of leather, he added, it costs about 12c. when done by the mill and from 22 to 24c. when done by an outside concern.

A spinner stated that he has found by experience that calfskin lasts at least three times longer than sheepskin. In a comparison he has made between cork and calfskin, he has found that the average breaking strength over a number of months on 20s yarn was 102 for cork and 105 for calfskin. Ends down, he said, were about the same. Another spinner has obtained satisfactory results with a 24-oz. flannel underneath his calfskin. The point was made that mills running with cork rolls must keep their spinning department humidified over the week-end to prevent excessive breakage during the first two or three hours on Monday morning.

Long-Drafting Discussion

Mention was made of the fact that trouble is sometimes encountered with long-drafting systems when the weighting is not sufficient. Weights of 4½ and 5 lb. were recommended.

The chairman asked whether anyone is running the revolving clearer in the front of the board on the back of the two rolls in their long-drafting systems. Two spinners reported that they are having trouble with this arrangement because the board is so near the revolving clearer that accumulations rub against the board and get down into the stock. It was suggested that the rolls might be crowned off in order to overcome this.

Regarding the long drafting of 29s yarn, the statement was made that 18 is the highest draft which will give satisfactory results on 1-in. stock. The opinion was expressed that on 1 1/16-in. stock a draft of 20 would be feasible.

The chairman asked for the results of experience with the Belger roll. One mill, according to its representative, could not make a success of this roll on 50s up. Another mill found that it gave as good breaking strength as a regular long-draft system on warp yarns, but that it burst out at the ends when used on filling yarns, possibly due to too much pressure.

A spinner reported that his mill is making its own long-drafting system by replacing the middle roll with a ⅝-in. smooth steel roll, using new stands and small middle top rolls, with a space of ⅞ in. from center to center. He said that he is getting from 2 to 4 lb. more break than in his regular yarn. He believes that a patent is held on this system by an English inventor.

Changing Travelers

Discussing the frequency with which travelers should be changed, intervals of from three weeks for warp to four weeks for filling were mentioned. One spinner reported that on 28s warp yarns, warp wind, 1¾ in. ring, No. 1 flange, 6½ in. traverse, 9,300 r.p.m., he found that his square point traveler would not last more than two weeks. Reduced traveler wear, particularly when equipping a frame with new rings, was reported by spinners who are using the new Merrill oval-top ring.

The next discussion was on oiling and the use of shell rolls. Two spinners reported that they have used these rolls but found it necessary to place them in back in order to avoid trouble. A third spinner commented on this matter as follows: "I have shell rolls and have tried most everything in the oil line. We found a mixture of non-fluid oil with a black engine oil was good, but it has the drawback that some oil is likely to get on the yarn, and it cannot be taken out in the bleaching process. I was advised to use a light grade of grease, and we bought the best grade of grease, but it lasted about a week. Then we bought a stringy oil, very high priced, and I think we got about four days out of that. Now I have lost my courage trying them. Possibly setting the shell rolls in back might help."

A spinner who had slightly excessive production in the card room and very limited production in the spinning, found, according to his report, that by putting in a little more twist in the roving than ordinarily considered necessary he was able to do with one tooth less of twist in the spinning.

Conditioning Yarns

There was considerable difference of opinion regarding the necessity for conditioning yarns. A number of spinners reported that they are obtaining excellent results with conditioning machines, while others stated that they have overcome shelling off in the shuttle by improved methods of winding the filling and by better and constant humidification in the weave shed. One speaker recommended overcoming kinking by keeping a supply of filling ahead of the requirements of the weave room, rather than weaving filling fresh from the spinning frame.

With reference to voile yarn, one mill, according to its representative, winds it, wets it, dries it out, and then winds it back again. Another mill steams its voile yarn in a conditioning machine twice, about four hours apart, and weaves it the next day. Another speaker stated that he used to put his yarn on trucks in small boxes, push it into a steam box, and shut it up, but found that this rotted the boxes and trucks, so that he changed to the use of live steam. One mill treats its crepe and voile yarns in a conditioning machine for 45 minutes. Another conditions only yarn which is over four times the square.

Speaking of the damaging of bobbins in the yarn-conditioning operation, one spinner reported that he avoids this difficulty by using enameled bobbins with brass bushings for crepe yarn. Another stated that he is making use of the light brown metallic bobbins with rings, but has had trouble with the rings rusting. A third spinner said that he is using over 100,000 of the light bobbins and finds them satisfactory. The chairman declared that the black enameled bobbins warp more quickly.

Satisfaction with the new Stimpson clutch spindle was expressed by one spinner, who is operating 12 frames equipped with it. Another spinner reported that he has found it necessary to discard the old type of clutch spindle on his warp frames because of broken springs on the inside of the clutch.

Cast-Iron and Plate Holders

Opinions were called for regarding the relative merits of cast-iron and plate holders. One speaker replied that the cast-iron holders wear better. The two screws of the plate holder were said to require constant tightening. The plate holder, however, was said to be best when plumbing the spindles, because it can be more easily adjusted. An answer made to this argument was that with plate holders the rings will be frequently out of line, while with cast-iron holders they will always be in the center.

"If you set your spindles for a plate holder when you are changing rings," declared one speaker, "they will never fit on cast-iron holders. In changing from warp to filling rings, if you have plate holders, you will have to take them all out and put on bigger or smaller rings, and you will have to set the rings and spindles all over again. On a cast-iron holder, however, the center will be there just the same."

The chairman asked for results of experience with ball-bearing spindles. "We have one frame on ball-bearing spindles," replied one spinner. "We oil the spindles about once a year. The only fault I find is that you have got to take the spindle out to oil it, and you are likely to get a little lint on the bottom of that spindle in putting it back in. This causes sticking."

Scouring Twister Rails

In scouring twister rails, one speaker recommended that a second tub of clean hot water be used. If the rails are hot, he said, the grease will wipe off readily, and the water will have evaporated by the time the rails cool off. Another recommended that the rings be taken out and the rails scraped. He believes that sal soda in the water will not do very much good because of the resin in the grease. Good results with cleaning by kerosene were reported by another. One spinner stated that, although kerosene is fairly satisfactory, it causes traveler trouble at the first greasing. Scraping of the twister rails with a knife was recommended.

A spinner raised the question as to how the lifter rods should be lubricated. One reply was that they should not be lubricated at all, but should be kept clean. It was pointed out that new bushings or new rods which do not work freely should be reamed out, and that oil will drag more lint into the bushings. Lard oil was recommended by one spinner as capable of eating the cotton fly, lubricating the rods, and cleaning out the bushings.

Making Spinning Bands

The final subject discussed at the meeting was the making of spinning bands. One mill reported that it makes its own bands, producing its own yarn on a spinning frame from whatever stock it happens to be running, whether $1\frac{1}{16}$ or $1\frac{1}{8}$ in., about $2\frac{1}{2}$ hank, putting in about 8 turns. Two mills reported experiments with the use of warp and filling yarns with the regular band yarn, but have found that it has a different contraction and merely breaks out. One mill makes its bands out of 5-hank roving, 6 turns per inch, 11 ends up on the band machine, 92 bands to the pound. These bands were said to be made of good cotton and to break at 165 lb. Representatives of this mill stated that the bands never slip, but properly break when they go. Another mill has found it advisable to increase its twist to 8 turns in order to avoid stretch. One mill uses 10 strands; another, 8. A band of 16 ends of $7\frac{1}{4}$ hard twist was in addition recommended.

Spinners discussed many problems of the ring frame

A spinner recommended a small band as superior to a large band. Preference was expressed for a weight of 70 bands to the pound. A 90-grain band is preferred by one mill. It seemed to be the general consensus of opinion that bands made by the mill are superior to those which are purchased. One spinner stated that his band machine is 20 years old; and another, that his is 40 years old.

Stars in Silks and Rayons—

Costly Defect Difficult to Discover Easy to Prevent

By H. E. Wenrich

ANYONE of normal intelligence would make a satisfactory inspector of cloth in the gray if nothing more than ordinary defects required detection. Such defects as floats, shires, finger marks, and starting marks, which are usually seen on the face of the cloth in front of the reed before the cloth passes down over the breast beam, are readily noticed by the inspector. However, there are certain less-evident defects which the inexperienced man never notices and which are often passed by long experienced cloth examiners as the cloth is run over the inspection frame. One of these is the defect appropriately called "stars." At times it is impossible to discern this trouble in the gray.

Stars stand out in the finished cloth like stars in the sky on clear nights. Unfold a piece of finished material with this defect in it; and, as the unfolding proceeds, the stars appear like glittering diamonds, easily attracting notice. Any mill executive who has been called on the carpet for stars knows how really serious this defect is. Silk found thus defective, especially crepes in solid colors, is almost impossible to sell.

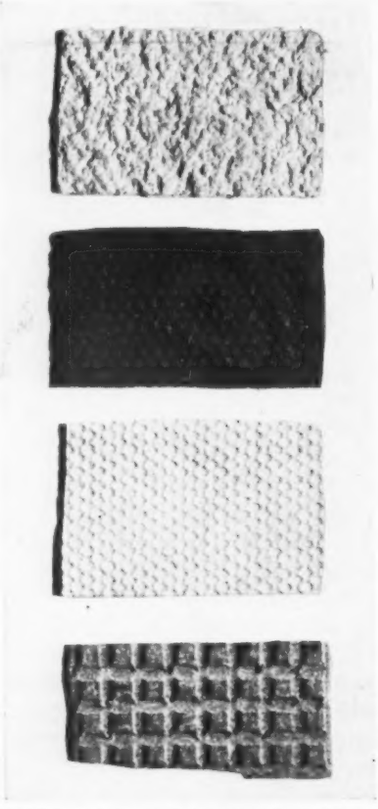
One Cause for Stars

There seems to be but one cause for stars. There is likewise one sure cure for them, although there are several minor methods which are of assistance in getting rid of them. The cause to which I refer is of course cutting of the filling, and sometimes the warp, by the sandpaper on the cloth take-up drum. Since we know the manner in which the thread is cut, it would seem obvious that the defect could be discovered quite easily; but this is not the case. Stars can be detected at times on georgettes made from three-thread and four-thread, but on crepes of the same threads they will be passed without notice. On georgettes or other hard-twist-warp material, the ends both warp-wise and filling-wise are often cut; while on crepes with a raw-stock warp thread the filling is the thread which becomes cut.

One of the reasons why this defect is passed without any notice is the fact that in only one case out of thousands is it likely that a thread will be cut through. On close examination the defect is found to be in the form of small white spots barely the size of pinheads. These white spots are bruise marks caused by the sandpaper on the roll. They are so small and inconspicuous that it is little wonder they are passed by in the gray.

Trouble Develops in Finishing

There is but one opportunity for these bruises to become full-fledged stars, and that is in the finishing plant. As the cloth is put through the processes of dyeing and finishing, it shrinks, depending on the amount of twist in the thread, the number of picks, and the cloth width. Later the cloth must be brought back to within a few inches of its former width. During this process of stretching, the small unseen white bruise spots are subjected to more tension than they can stand, the threads part, and very small holes are left in the material. As the material is next processed and the final work is placed upon it, the small holes become stars. Although this defect is at no time the fault of the finisher, it does not appear until the final work is being done in his plant.



Crepe rubber, Black gridded rubber, White gridded rubber, Gridded cork

Materials used to cover loom take-up drums

In getting rid of this defect in the weaving shed, the outstanding method consists of covering the drum with some other material than sandpaper, preferably cork or rubber. Although this method entails some expense at the start, it is a positive cure. Some mill men are strong believers in sandpaper, and will not agree with me in this.

Examine Drive, Let-Off, and Take-Up

In attempting to eliminate stars caused on looms equipped with sandpaper, it pays, first of all, to look over

Stars cannot always be detected in the weave room, but they nevertheless originate on the looms

the drive. A belt drive with a choppy, irregular run will cause stars. The choppy movement is transmitted to the loom and causes the cloth to swing back and forth over the drum. If this swing is great enough, the sandpaper is bound to bruise the material seriously.

Insufficient counterweight on the ropes at the let-off will likewise give too much swing to the cloth, causing the same movement and making the same type of defect as a choppy drive. Sufficient counterweight must be maintained at all times.

Another point of trouble is at the friction on the take-up. Improper working of this friction is the cause of many defects, and it is advisable to inspect this part of the loom at frequent intervals. Some types of looms have a clamp with bolts for tightening or loosening the take-up friction, while other types have a handwheel nut. If this friction holds too tight, it draws the material very taut, letting it go suddenly. When the cloth is thus released, the threads in the material become bruised over the larger pebbles in the sandpaper.

Cork and Rubber

Cork and rubber are very good substitutes for sandpaper. Another material which has been used is a thin covering of leather. Rubber has been used quite successfully on looms in some mills; and in one case with which I am familiar, a covering of this type has given service for the past six years and is still in use. In placing the cork, leather, or rubber on the rollers, the sandpaper is first removed and the substitute glued on. When the rubber, through constant use, becomes soiled, it can be washed off with gasoline. The gridded cork, after wearing down, should be removed and a new layer placed on. I have not found the leather suitable for heavy work.

The cost of covering one roll with sandpaper is usually about 40c. when the material is purchased by the roll. The cost of covering the same take-up drum with gridded cork or rubber is, on an average, about $5 per loom. The rubber costs a few cents more than the cork. It will be noted that there is a large difference in price; but in making a comparison of costs, several factors must be considered. Sandpaper, to be used successfully, must be gritty. It must have a gripping power capable of holding the cloth no matter how heavy its construction. Naturally, therefore, new sandpaper must be placed on the rolls at frequent intervals. At the same time the mill is inviting trouble from stars. Therefore the cost of frequently renewed sandpaper and the cost in seconds must be weighed against the first cost of the cork or rubber covering.

Gridded rubber has been on the market for a number of years, but the past year has seen the addition of two new members to the rubber family for covering take-up drums. One of these is a heavy rubber, and the other is a crepe rubber. The crepe rubber is claimed to be immune to the deteriorating action of the oils in silks, as well as to that of humid conditions. It will be seen at once that this crepe rubber requires no cleaning and hence reduces the expenditure for cleaning fluids.

The change to star-free material can be undertaken profitably by any mill which still has sandpaper-covered drums. The drums can be readily covered with the new material at the end of the cuts.

Fulling and scouring machines have been modernized

Firth & Foster

Plant Reorganization Increases Operating Efficiency

By George C. Bryan

Supervising Engineer, Lockwood Greene Engineers, Inc.

EXECUTIVES of Firth & Foster Co., Philadelphia, decided recently to have made a complete reorganization of their plant, including power plant and machinery and departmental layout, to create the most efficient operating conditions and allow for straight-line flow of production. The probable requirements for the next ten years were also taken into consideration.

This company is the oldest in the country specializing exclusively in job dyeing and finishing of woolens, worsteds, mixtures, and jersey cloth, and has been in business for about 62 years. The plant is located in the Kensington district at York, Emerald, and Hagert streets.

Gradual growth of the plant and obsolescence of machinery had resulted in a generally uneconomical layout. After study, it was found that one of the three blocks of buildings and one boiler house could be eliminated by rearranging departments, installing more modern machinery, and equalizing the steam load.

Power-Plant Alterations

The older boiler house, covering an area of about 3,000 sq.ft., was located in the center of one group of manufacturing buildings. Its equipment consisted of four vertical boilers of 300 hp. each, equipped with automatic stokers, engine driven.

Due to the small amount of coal storage available, it was necessary to truck coal to the plant continuously; and since there were no overhead storage bunkers, the coal was stored in the boiler room on the floor. There was no ash-handling system, ashes being trucked away as necessary. Two boilers had individual steel stacks, and two boilers were connected to a brick chimney.

All boilers and equipment including steel stacks were removed and disposed of as junk. The brick chimney was left in place for possible future use as a ventilating duct. Space released by the removal of the boilers has been used for manufacturing, and a new second floor has been installed for additional manufacturing space.

The main boiler house is equipped with four water-tube boilers, totaling 1,500 hp. capacity with automatic stokers, engine driven.

A forced-draft system supplies all boilers through a tunnel under them, and a pneumatic ash-handling system delivers to an overhead storage hopper for truck removal.

Coal is carried by a conveyor system to storage hoppers over the boilers and delivered to the boilers by a weigh larry.

The engine room contains one 600-hp. tandem compound engine direct connected to a 400-kw., 230-volt, d-c. generator, and two 125-hp. engines direct connected to 100-kw., 230-volt, d-c. generators. The large generator is for regular service, supplying power and light, and the two small generators are for extra or overtime service.

The main boiler and engine plants were thoroughly overhauled, no extensive alterations being made. There were originally two independent steam mains connected to both boiler houses, one carrying 125-lb. and the other 65-lb. pressure. The 125-lb. line, which supplied engines located throughout the plant, was cut out of operation

since these engines were discarded. However, part of the 125-lb. header was retained to supply the engines driving the generators. Some boilers supply steam at 65 lb. for process work, make-up being secured through a reducing valve from the 125-lb. line. Thus, all boilers can be called upon to supply, through the 65-lb. line, peak demands for process steam.

Machinery Layout

Direct routing of materials as far as possible was accomplished by arranging the scouring, fulling, dyeing, drying, and similar operations in order on the first floors of the buildings. Consecutive operations were located together to avoid extra handling and trucking and crossing of lines of travel. On the second and third floors, served by freight elevators, the other work of finishing, packing, and shipping is done. The general offices are located centrally and adjacent to these latter departments.

In rearranging the plant, practically every machine was moved and either junked or repaired and grouped with new machines on foundations set with ample space around them. The greater capacity for a given area of the new machines, the better arrangement of all; and the space gained by junking one boiler plant permitted the elimination of one block of buildings.

Most of the scouring and fulling mills were replaced or rebuilt. Where soap was formerly carried by "bucket brigade," a mixing and storage tank, circulating pump, piping, and measuring devices serve the same purpose much more successfully. Improvements were made in mixing steam and water and regulating the overflow. Power reels deliver the cloth from the machines.

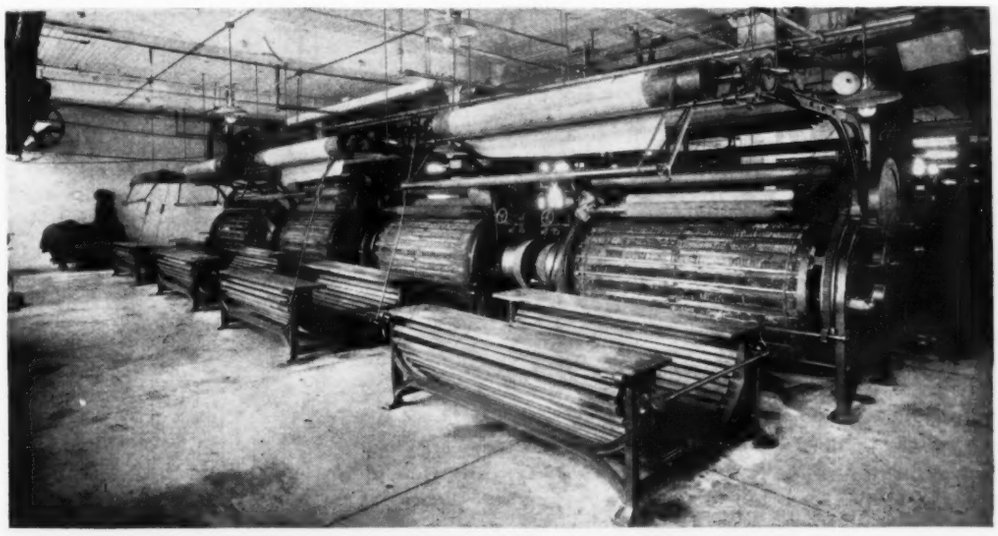
The new type of scutchers installed for opening goods have vacuum extractors attached, which remove a large part of the moisture content. Use of this type of scutcher permits the elimination of some of the hydro-extractors formerly used. Scutchers in various other sections of the dyehouse were equipped with the vacuum attachments. These were also attached to other machines, such as soaping, wetting out, and carbonizing units.

The newest type of carbonizing equipment replaced the old which was obsolete.

New dye tubs were installed; and the following machines were either replaced or rebuilt: tenters, dryers, shears, nappers, and rotary presses. On the tenters and dryers new electric automatic feeders were installed.

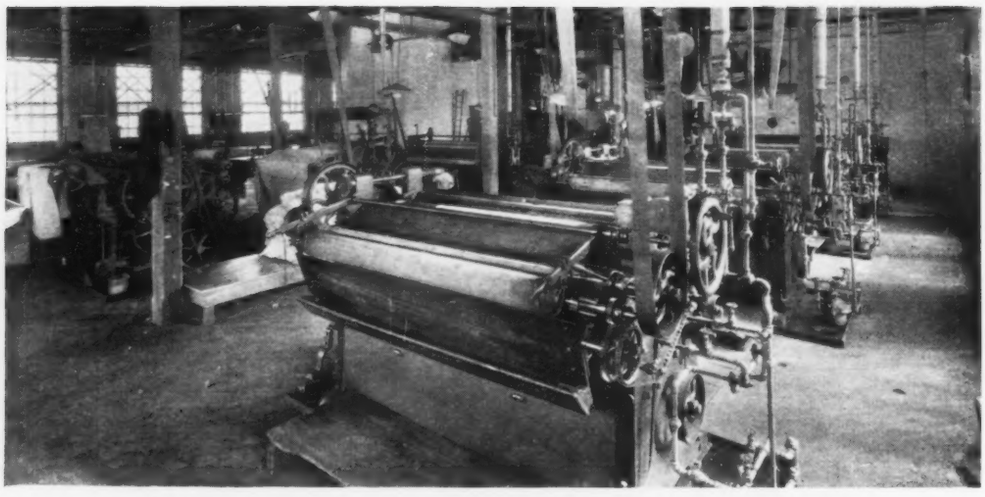
During the planning and the process of changing, tests of steam and water used were made on the various machines. On the dryers and tenters, new insulated housings were installed with modern fan and coil systems of heating, giving more efficient use of the steam. Speeds were arranged to suit various weights of materials. The result is increased and better quality production with a reduction in occupied floor space.

For the jersey dryers, various tests were made to determine proper heating elements and temperatures for drying jersey cloth. Improved methods of feeding and other details were arranged to condition and dry this



Nappers and gigs are arranged for straight-line flow of production

Old shears have been rebuilt or replaced with new equipment



Layout and equipment of pressing department after reorganization

material properly. For the semi-decating machinery, which was new, arrangements were made to obtain proper steam-pressure regulation and quality of steam to obtain the finish desired.

Temperature-recording equipment was attached to some machines.

Service Equipment Changed

In the plant the old steam engines were eliminated and motor drives substituted. Machinery is arranged in groups driven by motors mounted on platforms hung from ceilings to secure easy access. By careful planning, it was possible to make this change without buying new motors, some of the older machines being over-motored. Motor sizes range largely from 10 to 35 hp.

Both power and light are furnished by the generators in the engine room through a three-wire, 230/115-volt system. The old lighting system is replaced by a modern system of general lighting with local lights at machines as necessary. Wiring is all in exposed conduit. Gas is retained only for the singers.

The 65-lb. process steam line from the boiler plant was rearranged to simplify cross connections and provide a new system of branches to the relocated machines.

Excessive peak conditions for steam demand on the boiler house which had prevailed were reduced by better use of steam at the machines. It is also a part of the reorganization to route material and plan the various operations in the dyehouse and other similar departments to create an even demand for steam as far as possible.

In connection with the planning of operations, studies of costs in various departments are still being made in order to establish a piece-rate system. This has been successfully accomplished as far as completed.

The heating system is high pressure, supplied by the process mains. All piping was covered; and traps, condensate pumps, etc., were installed for proper collection of condensate which was formerly wasted. The returns go to a receiver in the boiler plant and thence to the boiler-feed pump. These returns pass through an oil separator to make sure that no oil enters the live steam to cause oil stains in the processes.

Exhaust steam from the engines passes to a closed hot water heater. A pump delivers water through this to a 25,000-gal. storage tank which supplies the scouring and washing departments. The dye tubs are supplied directly with steam and cold water.

Practically the entire water system is new. Duplicate branches and connections have been eliminated. This has prevented to a large extent careless waste of water. With better use in the machines, the saving is considerable. Mains were sized and fitted with outlets to suit present and possible future demands. City water is used without treatment except for the boiler feed.

Concrete floors were provided throughout the dyehouse and similar departments, these floors being sloped to drain. Where required, machinery was placed in open trenches or otherwise drained to open trenches of ample size connecting to trench sewers. Existing sewers were enlarged where necessary, and in all cases they were thoroughly cleaned and provided with manholes.

General ventilation of the dyehouse is accomplished by fans drawing fresh air over heating coils and blowing it into a system of ducts distributing warm air to suit the layout of machinery and to prevent fog. Exhaust fans draw the moist air from hoods over the dye tube and other steam-using machines throughout the plant and discharge it to the open air.

General improvements, such as painting and better drinking-water, washing, and toilet facilities, were included in the program.

No Suspension of Production

The whole reorganization was accomplished without suspension of production and with but little interference with it. Since these changes were made, a decided difference is noted in steam demand with much better operating conditions at the various machines. Increased production on various steam-using machines, notably dryers, is obtained with less steam and improved quality of product. Altogether an increased output of better quality from a plant of reduced area is now secured because of the reorganization.

The work was done by a temporarily enlarged force of employees and a few sub-contractors under the direct supervision of F. R. Baker of Firth & Foster Co. Lockwood Greene Engineers, Inc., of New York City, prepared the report and cost estimate, final plans and specifications, and supervised their execution.

Items of new equipment installed and their manufacturers include the following: carbonizer, Andrews & Goodrich, Inc.; semi-decating machine, Parks & Woolson Machine Co.; scutchers and vacuum extractors, Birch Brothers; vacuum pumps, Nash Engineering Co.; and tenter housing and heating systems, Philadelphia Drying Machine Co.

How *a Bedspring* Plus *an Idea* Became the Franklin Dye Tube

By
Walter A. Simond

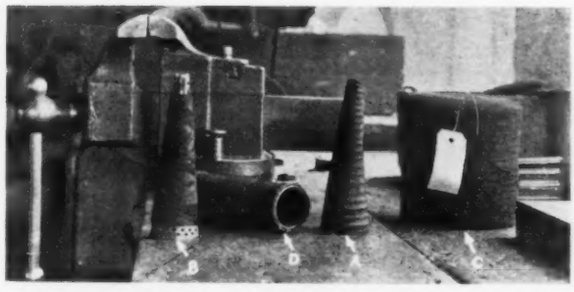


Fig. 1. Stages in development of Franklin dye tube, as described by the inventor in this article

Fig. 2. Operators who wound first Franklin dye tubes, and equipment employed

THE first type of package-dyeing equipment to be brought to the writer's attention was the L. H. A. Swartz machine. This was a rectangular kier designed to hold yarn which had been wound on perforated tubes of zinc or aluminum. The tubes were placed upright in the kier between a lower and an upper deck which held the two tiers in position. The dye liquor was pumped through the tubes and yarn for a period of time, and then the flow was reversed by turning suitable valves in the dye pipes. The Swartz machine was imported into this country from Europe about 25 years ago and met with considerable success.

With the advent of sulfur blacks Sulloway Mills, of Franklin, N. H., purchased a Cohnen centrifugal dyeing machine. This machine had an enclosed circular basket with six compartments into which the cones of yarn were pressed. It was, I believe, the first package machine to be used for sulfur dyeing. The glue used in the pasteboard cones softened in the dye, worked out into the yarn, and on drying caused a loss of yarn which varied from 8 to 15%.

It became apparent to the writer that we ought to have a better cone. This cone should be durable, offer the least possible resistance to the flow of dye, and yield readily to compression in the packing of the dye machine. Several years previously with other boys I had played with some conical bed springs, which had been dumped near a great boulder behind our barn. We used to throw the springs against the boulder to see how far we could make them bounce, and I remembered them to be nearly indestructible. With the permission of R. W. Sulloway, then the assistant superintendent of the mill, I made two cones from steel springs to fit our Universal winder, took them home, had them covered with common cotton cloth, and made our first test. This was entirely successful, and one of the original cones is shown at *A* of Fig. 1. In the meantime the superintendent returned, and we reported the experiment to him. He thought the tubes would be too expensive, and recommended a perforated sheet-iron cone.

We found, however, that the sheet-iron cones crushed in packing, corroded slightly in the dyeing process, and thereby caused the loss of a little of the yarn. The perforated sheet-iron cone is shown at *B*, Fig. 1. I then suggested that we use tubular springs to increase the capacity of the dyeing machine; and after securing proper spindles, we began winding the small-diameter Franklin tubes.

Our first batch was dyed on April 13, 1906; and the first tube, marked *C* in Fig. 1, after reposing for 24 years in the bottom drawer of a workbench, has recently been presented by Mr. Sulloway to the U. S. National Museum, at Washington, where it will be placed on exhibition in the textile division. Thus Sulloway Mills, of Franklin, N. H., became the birthplace of the Franklin dye tube.

In making our preliminary tests we tried various counts of cotton yarns, using as fine as 120s. On account of the corrugated surface of the covers, we found it best to cover the tubes with a $\frac{1}{4}$-in. layer of coarse cotton yarn when we dyed 60s and finer. Some silk which we dyed we protected with a $\frac{1}{8}$-in. outside layer of cotton yarn. The coarse yarns were rewound each time and used on heavier fabrics. Worsted and woolen yarns gave much less trouble from fulling in the dyeing process than those dyed by older methods. Fig. 2 shows the equipment on which the first tubes were wound.

We also improved the rewinding by tucking the cover inside of the end of the tube and inserting a round-edged, single-headed spool. The head, which was highly polished, projected over the edge of the tube about $\frac{1}{4}$ in. After the tubes have been rewound to that point where the corrugations are deep, the liability of the yarn to catch on knots is prevented by the head of the spools, and the surface tension of the cloth cover is reduced. These spools, bored to fit winder spindles, center the dyed package.

In 1908 Frederick H. Daniell, of Franklin, and John C. Hebden, of Providence, R. I., developed the Franklin Process dyeing machine to use my tube to better advantage. To encircle the perforated dye pipes, the tubes have been enlarged as shown at *D* of Fig. 1.

OVERSEERS' ROUND-TABLE

THIS department offers a new subject for discussion each week and gives readers' comments on problems introduced during previous weeks. The subject which was opened four weeks ago is closed this week and a summary of contributed ideas is given on opposite page

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On "Scouting" Other Mills

Editor, Overseers' Round-Table:

PETE GETS my vote this time. I do not think we should tolerate the "spy" system. If we have a man who is loyal and smart enough to go out as a spy, then he will be worth more to us on our own job than he will be out spying for us. We should be resourceful enough to keep abreast of modern methods, without recourse to spying, particularly with the modern method of exchanging ideas, for if our competitors have something they will not give away for fear we will become as smart as they, then they will soon find themselves relegated to the rear.

If we go along dependent on stealing the other fellow's ideas we will never get anywhere. We must develop "better" ideas than the other fellow has. If we wait to send out a scout in order to find out how some other fellow does it, then the other fellow is already ahead and we are trailing.

I think it is a very poor kind of sport to spy on each other. The friendly exchange of ideas, however, is valuable and highly honorable. GEORGE.

Editor, Overseers' Round-Table:

YOU HAVE the question of scouting up for discussion. To my mind this is a dirty, sneaking way to find out something about the other fellow's job.

Sending a man from one mill to another, to get fired as soon as he is found out as a spy, gives a black eye to the spy and to the overseer who sent him out. The way I see it, it seems as though such an overseer doesn't know much about his job. E.S.

Fostering Association Work

Editor, Overseers' Round-Table:

THE UNDERLYING motive in fostering associations is the scientific advancement of a particular industry. Meetings, then, for the most part should be confined to the presentation of technical papers and discussions.

The greatest problem is to secure the attendance of those who should be interested in the subject. Technical sessions are bound to be popularized if they take the form of a dinner or are well balanced with some light entertainment.

Many progressive concerns make a point of paying the membership of one or two of the staff in an accredited organization. The personal contacts which are promoted through such meetings develop bigger men and promote better relations within the industry. H.S.D.

Editor, Overseers' Round-Table:

AN OVERSEERS' association meeting, in order to interest all its members, should not be all technical or all social. I have derived the most benefit and pleasure from one consisting of a dinner followed by a 20-minute technical talk, preferably by a fellow member. The talk is discussed from the floor and other subjects may be introduced. The leader of the meeting should be a master of ceremonies who has the gift of making members feel like talking when called upon.

Plenty of time should be allowed, before, during and after the meeting for everyone to meet everyone else and to have an opportunity to talk with new and old friends about business and social matters. If the association should get too large it should be divided into groups, as in the A.S.M.E.,

Company-Overseer Relation

"HERE is a problem which is more troublesome in some types of plants than in others, but I think every mill has some difficulty along these lines," Superintendent Chase started the overseers' meeting. "I refer to the overseer turning over all his information to the company. To take the most obvious example of what I mean, consider the boss dyer. A certain shade is popular and the boss dyer works out a formula to dye the shade correctly. Now, should the boss dyer turn over a copy of the formula to the company or should he consider it his own personal property? You can see where the same type of problem comes up in about every kind of mill to a greater or lesser extent. What do you think about it?"

"There has always been some argument in my own department about turning over to the company certain information which I work out myself," Bill spoke up. "However, so there will be nothing personal about this discussion I'll talk about the boss dyer. To my mind the boss dyer should not be called upon to turn over his formulas. The company hired him to get results and if the dyer gives results I don't see why he should have to tell how he gets the results. The dyer has spent many years learning his trade and the only thing he has to show for it is his knowledge. Do you think it is fair to have him use this knowledge to do the work he is being paid to do, and then tell everybody how it is done? Suppose the boss dyer turns over all his formulas. Isn't it possible that the management will be tempted to let him go and put a cheaper man in his place, since it doesn't require much knowledge to use a formula once it has been worked out? I don't think the overseer should be required to make a record of how he actually does things; it is enough if he gets results."

"I have no objection whatever to turning over to the company any rule or formula or anything else," Pete came back. "The company pays me for my knowledge and if it wants me to write down some things I think it is perfectly justified in asking me to do so. I may be out sick for a few days or a week and it is right that the company should have records which will enable the

on Formulas, Etc.

work to go on for a few days. As for the great importance of such records I disagree with Bill. No overseer who is any good could ever possibly write down all he knows. No sane superintendent believes that once he has the records and formulas of an overseer he can let the overseer go. I once knew a dumb second hand in a dye house who pestered his boss dyer about formulas. The boss dyer finally laughed and gave them to him, knowing what would happen. Then the second hand goes out and gets a job as boss dyer in another plant, thinking that all he had to know was the formulas. Naturally he made a mess of the job, because having formulas isn't even half of being a good overseer; you have to know how to use and change the formulas. I think the company is entitled to all the formulas, rules, records, etc., of the overseer, because the company really pays for them. In addition, I don't think that any overseer working for a sound company ever need worry about being fired because he has given the company a record of some formulas, etc."

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Do *you* think that an overseer should turn over to the company any formulas, rules, records, etc., which he has worked out, or should he keep them as his personal property?

Overseers and others are invited to discuss this and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

consisting of from 20 to 40. Of what priceless value are the friendships formed and the ideas and knowledge exchanged at these meetings! The more of this sort of thing that we have the better it is for the industry and for everyone connected with it. H.B.S.

Editor, Overseers' Round-Table:

IN MY opinion overseers' association should be concerned mainly with technical activities. Anything social takes second place. When a man becomes an overseer he has usually reached the age when he no longer takes the interest in social gatherings that he did in his younger days. Entertainments arranged by overseers are liable to be a farce.

Better leave social activities to the younger generation. I think that an organization which was principally concerned with the social would find little support from the average overseer. Technical activities, however, would appeal to most, for the men intimately connected with the industry keep up their interest till the end of their days. W.E.W.
England.

Small Stores in the Mill

Editor, Overseers' Round-Table:

THE MILL store is usually short lived. Such stores soon outgrow themselves and the mill management finds itself confronted with a chain store proposition rather than a single unit. The foreman soon finds the storekeeper spending more time keeping store than tending his machine.

Some concerns have attempted to solve the problem by running a "lunch cart" through the shop in mid-morning and mid-afternoon. The workers, however, rarely appreciate the efforts expended in this direction and the cart loses popularity and the store is out.

If the mill management shuts its eyes to eating during company hours it has tolerated enough, and it is up to the worker to secure his sweets, etc., from an outside source.
H.S.D.

Editor, Overseers' Round-Table:

NO ONE can successfully do two things at the same time and do justice to both. I am opposed to candy stands being conducted in the mill by anyone. I am in favor of vending machines, where anyone can buy candy, chewing gum or tobacco, being located in suitable places throughout the mill. A vending machine requires no attendant and does a cash business.

Let me tell you of a system that is used in a mill that I am acquainted with, to handle this question. A local bakery puts up lunches, such as cookies, doughnuts, sandwiches, candy bars, pastries, etc. Everything is wrapped and packed in a large basket at the bakery, and nothing costs more than a nickel. The salesman goes through the mill once in the morning and once in the afternoon.

He passes quietly through the different departments, there is no confusion whatever and the workers come to the end of their alley, pick out what they want, and go on with their work.

Regardless of the effect of lunching between meals on the digestive organs of the workers, this snack at the zero hour of the working period seems to pep-up the workers, and they go through to the whistle on high. "SUBSCRIBER."

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Summary of Discussion on Overseers' Associations

The question was whether the meetings of various associations of overseers should be primarily social or technical. None of the contributions favored straight social meetings and only a few wanted straight technical meetings. The plan most favored was a mixture of the two, consisting of a dinner followed by presentation of technical papers and discussion from the floor. Light entertainment intermingled with technical papers was also championed.

NEWS about MEN

✦ CARL R. BROWNELL, president of the Worcester (Mass.) Tire Fabric Co., has been elected vice-president of the Worcester chamber of commerce.

✦ L. N. LITTAUER, president of the Gloversville (N. Y.) Knitting Co., will deliver the principal address at the dedication ceremony in conjunction with the opening of a new recreational building in that city of which he is the donor.

✦ LEONARD A. YERKES, president of the DuPont Rayon Co., New York, N. Y., has returned to his office after a two months' absence abroad.

✦ HOWARD C. FAUST, president of the Gold Seal Knitting Mills, Reading, Pa., and wife, have gone to the West Indies on a three weeks' cruise.

✦ FRANK H. WILLARD, president of the Graton & Knight Co., W. HARRY INETT, assistant to the president of the M. J. Whittall Associates, Ltd., JOHN P. FRANKLIN, treasurer of the David Gessner Co., and ALBERT PALMER, mechanical engineer, and FRANK E. COLESWORTHY, purchasing agent, both of the Crompton & Knowles Loom Works, all of Worcester, Mass., have been elected to the Industrial Affairs committee of the Worcester chamber of commerce, and FRED J. BOWEN, assistant treasurer of the Crompton & Knowles Loom Works, has been elected a member of the Foreign trade committee of the same organization.

✦ MURRAY BECKENSTEIN and ALBERT BECKENSTEIN have been taken in as partners and elected officers of the Murray Knitwear Co., Inc., which operates a plant at 57-81 Thames St., Brooklyn, N. Y. The former will be secretary-treasurer of the company, while the latter will be vice-president. BARNET BECKENSTEIN is president. The company has been incorporated for $250,000.

✦ W. D. ANDERSON, president of the Bibb Mfg. Co., was principal speaker at a recent meeting of the company's sales force at Macon, Ga., while his son, W. D. ANDERSON, JR., presided over the banquet which concluded the two-day session. In his address, President Anderson expressed his confidence in the coming year.

✦ ARTHUR R. JONES has been elected president of the New Hampshire Senate this week. Mr. Jones is president of the Wassookeag Woolen Co. and treasurer of the Keene (N. H.) Silk Fibre Mills.

✦ ERWIN N. DARRIN of Hopedale, Mass., vice-president of the Draper Corp., is moving to Spartanburg, S. C., Feb. 1, where he will have general charge of the southern business. WALTER M. MITCHELL will continue in charge of the Atlanta, Ga., office and CLARE H. DRAPER, JR., will continue in charge of the Spartanburg office.

✦ JAMES S. LIPSER, executive vice-president of the Corticelli Silk Co., left Jan. 11 for a six weeks' business trip which will extend to the Coast and take in the entire United States.

✦ KEMP P. LEWIS, secretary and treasurer, The Erwin Cotton Mills Co., West Durham, N. C., has been elected first vice-president of the University of North Carolina's alumni association.

✦ J. P. LIDDY has resigned as treasurer and general manager of the Augusta Knitting Co., Utica, N. Y., in order to take an executive position with Robert Reis & Co.

✦ WALTER D. JONES, for many years associated with the Utica (N. Y.) Knitting Co., now its assistant treasurer and assistant manager, has just been appointed by Gov. Roosevelt to a special advisory board of New York State on prison labor.

✦ WALTER M. SCOTT, associated with the G. J. Esselen Laboratories at Boston, has been appointed chairman of the sub-committee on bleaching, dyeing and finishing, of Committee D-13, A.S.T.M.

✦ DONALD R. JONAS, southern representative of Boger & Crawford, Lincolnton, N. C., and MISS ANNE WILLIS of that city were married in late December.

✦ FRANK P. KNOWLES, a director of the Crompton & Knowles Loom Works, Worcester, Mass., has been presented with a gold medal by the Massachusetts State Dept. of Agriculture in recognition of his work in animal husbandry.

International

Col. Willey (Lord Barnby), head of Francis Willey & Co., wool merchants, of Bradford, and Boston, was a passenger on board the M. S. Aorangi from Sydney and Auckland to Honolulu. After a short stay there he will continue his trip eastward, stopping at Boston, before returning to England

✦ M. M. WHITENER, retiring auditor of Alamance County, N. C., has taken a position in the office of the Ester Hosiery Mills, Burlington, N. C.

✦ J. P. MARGESON, JR., has resigned as general manager of the Sulloway Mills, Franklin, N. H., effective Jan. 10. FRANK J. DOYLE has been appointed vice-president and sales manager, with offices at 358 Fifth Ave. RICHARD L. THOMPSON has been appointed assistant to the treasurer and general manager, RICHARD W. SULLOWAY.

✦ J. LESTER PERRY, district manager of the American Steel & Wire Co., Worcester, Mass., has been elected president of the Worcester chamber of commerce. JOHN F. TINSLEY, vice-president and general manager of the Crompton & Knowles Loom Works, Worcester, has also been elected a director of the chamber for four years. He is a former president of the organization.

✦ JOHN BOSCH, manager of the export department of C. K. Eagle & Co., Inc., New York, has given up that post to take up residence in Havana, where he will represent Eagle on the island of Cuba. Following Mr. Bosch's withdrawal from the managership. M. GUARCH has been appointed head of this department.

✦ H. RAY HOLT has been made representative of the Muscogee Mfg. Co., Columbus, Ga., in California. He formerly held the position of sales representative of the Cannon Mills, Concord, N. C., in that territory and later with Wellington, Sears & Co.

✦ FRANK BALDWIN, formerly superintendent in the Chautauqua Worsted Mills, Jamestown, N. Y., is now employed by the Amoskeag Mfg. Co., Manchester, N. H.

✦ WILLIAM U. HANKE, for many years superintendent of the Orr Felt & Blanket Co., Piqua, Ohio, has not become superintendent of the Philadelphia (Pa.) Felt Co., as, through an unfortunate error, was stated in these columns last week. This is entirely incorrect as Mr. Hanke has made no change but continues at the Orr Felt & Blanket Co.

✦ IVAN O. HARLOW, formerly with the Arnold Print Works, North Adams, Mass., and later with Eddyestone (Pa.) Mfg. Co., has become plant superintendent for the Bellman Brook Bleachery Co., Fairview, N. J.

✦ A. E. MASSEY, general superintendent, Thomaston (Ga.) Cotton Mills, and Aldora Mills, Barnesville, Ga., has resigned to accept a position as superintendent, Exposition Cotton Mills, Atlanta, Ga. He will be succeeded by N. L. WHITTEN, superintendent, Thomaston Cotton Mills.

✦ LOUIS H. TALCOTT, superintendent of the Pondicherry Woolen Co., Bridgton, Me., since 1926, has been transferred to superintendent of the Farnsworth Co., Lisbon Center, Me.

✦ H. D. TOWNSEND, superintendent of Nokomis Mills, Lexington, N. C., has been elected chairman of the board of education of Davidson County, N. C.

✦ J. D. SCOTT, superintendent of spinning with the Mohawk Carpet Mills, Amsterdam, N. Y., has been chosen treasurer of the Mohawk Mills Welfare Association for the ensuing year.

✦ C. W. PHELLIS, vice-president of Du Pont Rayon Co., has resigned. Mr. Phellis was connected with E. I. du Pont de Nemours & Co. for a number of years in various departments. While with the rayon subsidiary, he did much work toward the formation of the Rayon and Synthetic Yarn Association.

✦ GEORGE H. MINTOFT, assistant superintendent of the Said & Yarur Cotton Mills, LaPaz, Bolivia, S. A., has resigned his position and returned to his home in Hopedale, Mass.

✦ J. W. QUINN, assistant superintendent of both the Hampton and Hawthorne divisions of the Hampton Spinning Mills, Clover, S. C., has been elected a city councilman, of Clover.

✦ WILLIAM MILNE, formerly of the Sussex (N. J.) Print Works, has joined Celanese Corp. of America as a printing technician.

✦ FREDERICK BARTHEL is now employed as designer at plant of Warren Woolen Co., Stafford Springs, Conn.

✦ M. L. HANNA, of Cramerton, N. C., has taken a designing position with the Louisville (Ky.) Textile Co. DAVID HARDMAN has been appointed chemist and dyer.

✦ J. H. FAGAN is now overseer of spinning at the Union Mills, Monroe, N. C. He has been traveling for the Gastonia (N. C.) Brush Co., and Gastonia Roller, Flyer & Spindle Co.

✦ MATTHEW MCKENZIE, former overseer of dyeing for the Thorndike Co., Thorndike and West Warren, Mass., has accepted a similar position with the Falls Co., Norwich, Conn.

J. J. Krehbiel, president of the J. J. Krehbiel Co., New York, importers of textile machinery, who sailed on the S.S. Europa on Jan. 13 to make an extended visit through the European machinery centers.

✦ W. R. INNIS, formerly overseer of spinning at the Chadwick-Hoskins Mills, Charlotte, N. C., is now Carolina sales representative for the Troco Lubricating Co., of Philadelphia, Pa., with headquarters in Charlotte.

✦ PHILIP H. PARKER has been appointed overseer of dyeing in plant of Brampton Woolen Co., Newport, N. H.

✦ C. O. KINSLER has been made overseer of carding at the Peerless Cotton Mills, Thomaston, Ga. This position was assigned to Mr. Kinsler in addition to his other duties as overseer of spinning.

✦ C. T. MOTE, overseer of twisting at the Martha Mills, Thomaston, Ga., has resigned to accept the position of overseer of weaving at the Thomaston Cotton Mills.

✦ ARTHUR P. MORRILL retired Jan. 12 as an overseer in the worsted department of Amoskeag Mfg. Co., Manchester, N. H., after nearly a score of years in the employ of the company. Mr. Morrill has made no definite plans for the future.

✦ J. F. TONEY, of Spartanburg, S. C., has succeeded J. W. WHITE as overseer of weaving at the Monroe (Ga.) Cotton Mills.

✦ J. A. TATTERSFIELD, an expert dyer, has arrived at Carleton Place (Ont., Can.) and will shortly assume the position of foreman dyer in plant of George H. Hirst Co. He was accompanied by 15 experienced woolen mill operators from the plant in England.

✦ G. A. GATLIN, formerly overseer of carding at the Peerless Mills, Thomaston, Ga., is now overseer of carding at the Thomaston (Ga.) Cotton Mills.

✦ T. F. SWEENY has taken charge of finishing for the Gordon Woolen Mills, Inc., Newport, N. H.

✦ WILLIAM WELCH, yard foreman at the Pepperell Mfg. Co., Middeford, Me., for several years, has voluntarily tendered his resignation to Agent H. R. WHITEHEAD, owing to failing health.

✦ JESSE WHITWORTH is now bleachery superintendent at Dedham Finishing Co., East Dedham, Mass.

Obituary

Frank B. Graves

Frank B. Graves, long prominent in the textile industry of northern New York, died suddenly last week at Albany, N. Y. He was born at Greenfield, Mass., in 1861. After receiving his education in the public schools at Albany he entered the cotton and wool business conducted by Graves & Brown and continued with that firm until 1892 when he started the business of Frank B. Graves & Co. Subsequently he also formed the Enterprise Garnetting Co. at Cohoes. He was prominent in many upstate financial institutions and a leader in the business of reworked wool and other fibers.

Edward E. Taylor

Edward E. Taylor, district manager for the Charles A. Schieren Co., Pittsburgh, Pa., and his bride of four days both were killed Jan. 7, in an automobile accident in Canonsburg, Pa., on the Pittsburgh-Washington highway. They were en route to their new home in Pittsburgh following their honeymoon. They were married in Wellsburg, W. Va., on Jan. 3. Mr. Taylor was 36 years old and before going with the Schieren Co., was a salesman for the Graton & Knight Co., Worcester, located at its Atlanta, Ga., office. He was a member of the Masonic fraternity. He is survived by his parents, two sisters and a brother.

John Rockwood

John Rockwood, retired assistant foreman for the Crompton & Knowles Loom Works, Worcester, Mass., where he was employed for 40 years, died in Harvard Hospital, in that city, on Jan. 8, aged 84. He was a native of Rutland, Vt., and lived in Shrewsbury, Mass., since his retirement. He leaves a daughter and one son. Funeral and burial was in Worcester.

Richard Stearns

Richard Stearns, son of George R. Stearns president of the Riverside Mills, Augusta, Ga., was killed on the night of Jan. 10 in an automobile accident.

Edward C. Decker

Edward C. Decker, 72 years old, president of J. H. Decker Son & Co., Inc., silk manufacturers, Gloversville, N. Y., died at his home there recently, following a brief illness. He was also president of the People's Bank of Johnstown, N. Y., and became head of the textile concern a year ago, following the death of Edward Wells.

Emmett H. Cronin

Emmett H. Cronin, a foreman for the Whitin Machine Works, Whitinsville, Mass., died at his home there, Jan. 3, following a brief illness. He was 50 years old, and had lived in Whitinsville all his life. He leaves a widow, and daughter.

John Francis

John Francis, overseer of the twisting department of the Strong-Hewat Co., North Adams, Mass., died Jan. 4 at his home in Briggsville. Mr. Francis, a native of Wales, was 73 years old and has been associated with Strong-Hewat for 36 years. He is survived by two sons, two daughters, one brother and four sisters.

Sol. Wile

Sol Wile, author and former secretary of the Rochester (N. Y.) Clothier's Exchange and prominent Rochester attorney died on Jan. 3, after being run down by a trolley car. He was 78 years of age, and well known in the clothing industry.

NEWS about MILLS

Cotton

Helen Mills of Alabama and **Margaret Mill**, Huntsville, Ala. Walter M. Wellman, secretary and treasurer of these plants, has been spending some time in the East on business, which is said to be in connection with the future operation of the mills. It is expected they will soon inaugurate a full-time schedule.

***Clark Thread Co.'s** new 40,000 spindle plant near Austell, Ga., will consist of a three-story main building, measuring 495x134 ft.; a two-story, three compartment warehouse, 50x100 ft.; a one-story building for opening equipment, 50x100 ft.; and a one-story boiler house, 45x30 ft. Plans are being prepared by J. E. Sirrine & Co., architects and engineers, Greenville, S. C., and it is expected that bids will be asked for at an early date.

Harmony Grove Mills, Commerce, Ga., declared their usual 10% dividend on Jan. 7. All of the spindles at the mills are now being operated night and day and officials report that prospects are bright for the coming year. L. G. Hardman, governor of Georgia, is president.

Federal Penitentiary, Atlanta, Ga., has placed contract with the Bahnson Co., Winston-Salem, N. C., for humidifiers to be installed in the New Industries Building at the prison in which new spinning equipment will be placed.

Pepperell Mfg. Co.'s (Biddeford, Me.), plant, after weeks of preparation, is now receiving its power from the Cumberland County Power & Light Co.

York Mfg. Co., Saco, Me., is steadily increasing the number of its employees which now total 550. It is stated that about 400 new looms have been received and that 250 are already set up and in place.

Nashua (N. H.) Mfg. Co., has advanced production from a three-day week, operative for some months past, to a five and one-half day week at its local **Jackson Mills,** giving employment to about 600 persons. The company is said to have guaranteed work to the present working force until June 1.

Dunlop Tire & Rubber Co., Utica, N. Y., has resumed operations on a four-day-week schedule following a week's shutdown for inventory.

Border City Mfg. Co., Fall River, Mass., scrims and shade cloths, has put into operation several more looms and is gradually increasing its working force.

Kilburn Mill, New Bedford, Mass., has closed down its **No. 2 Mill** until further notice.

Everlastik, Inc., Chelsea, Mass., has concluded arrangements for the purchase of a plant at Kingston (Ont., Can.), in vicinity of station of the Canadian National Railways, and will remodel and equip for a new branch mill for Canadian trade. It is expected to have the unit ready for production in March.

Proximity Cotton Mills, Greensboro, N. C., in making up their pay roll have discarded the currency system and will hereafter pay off their employees by bank check.

Rudisill Spinning Mills, Inc., Lincolnton, N. C., have recently installed Breton Minerol process (oil-spraying of cotton) in their mills.

Lorraine Mfg. Co., Pawtucket, R. I., is running its looms on a 24-hr. day basis, to be continued until further notice.

Gluck Mills, Anderson, S. C., have resumed a full day and night operating schedule after running on a part-time basis since September. Approximately 400 people are employed.

Sewee Mfg. Co., Belton, S. C., has added 30 additional employees and is now operating the plant at capacity.

Glenwood Cotton Mills, Easley, S. C., have resumed production at their plant following a shutdown for the Christmas and New Year holidays.

***Certified Laboratories, Inc.,** Marble Falls, Tex., are giving employment to about 80 operatives at their local cotton mill, used for the production of cotton goods for surgical dressings, etc. It is expected to advance this quota to about 100 operatives at an early date.

Wool

Rock Mfg. Co., Rockville, Conn., closed five years, has sold 20 of its remaining 92-in. woolen looms and two pulling machines for shipment to China. They will be used to manufacture blankets.

Hanover (Ill.) Woolen Mfg. Co. plans to start production soon. At a meeting of stockholders, it was brought out that production could be started on a profitable basis with an internal reorganization and a thorough disposal of present liabilities. The company was organized 12 years ago.

Bigelow-Sanford Carpet Co., Clinton, Mass., has increased production by calling in operators of broad looms and employees of the cloth room. No indication is given as to the length of employment.

Hinsdale (Mass.) Trading Corp., is attempting to raise funds to open the Hinsdale Woolen Mill. Louis Epstein, heading the project, will finance future operations at the rate of $4,000 monthly for wool, $8,000 for salaries and $300 for coal, providing $1,500 be raised for blanket samples.

Uxbridge Worsted Co., Inc., Lowell, Mass., is employing three shifts, totaling 350 workers, and operating day and night, according to officials.

American Woolen Co., Lawrence, Mass., is operating on a three-shift schedule in the weaving department of its local **Washington Mills,** and all other departments of the plant devoted to the production of cloth are running full. It is expected to hold to this schedule for several weeks to come.

Wyandotte Worsted Co., Pittsfield, Mass., has resumed operations after a two weeks' shutdown, affecting 150 employees. It is planned to increase this number to 300 or 350 as quickly as possible.

Advance Fibre Process Co., Stoughton, Mass., organized a few months ago to take over the local plant and business of the **Southworth Mills, Inc.,** West Stoughton, for the production of wool shoddy, etc., has secured a state charter, with authorized capital of 2,000 shares of stock, no par value. Charles Ray is president and treasurer.

Thorndike Co., West Warren, Mass., has been obliged to shut down its woolen division owing to the shortage of water in the Quaboag River, which supplies the water power. Unless rain or a thaw comes soon the plant will probably be able to operate but a few hours each day for a while.

Mohawk Carpet Mills, Amsterdam, N. Y., resumed operations Jan. 12 following a two weeks' shutdown for the annual inventory.

Hardwick & Magee Co., Philadelphia, Pa., Wilton rugs and carpets, has adopted a new wage schedule at its mill, said to be on a reduced basis from previous schedule of about 10%.

Hardwick Woolen Mills, Cleveland, Tenn., are running on a five-day week schedule, and expect to hold to that schedule for an indefinite period.

Stones River Woolen Mills, Murfreesboro, Tenn., have been closed down indefinitely. They have been making a line of blankets and other woolen products.

Jewell Brook Woolen Co., Ludlow, Vt., has closed its plant for the present until new orders are in hand. **Eagan Mill** is running three days a week.

Gay Bros. Co., Cavendish, Vt., chinchillas and wool filled overcoatings, has closed its plant for the present.

Watchorn & Co., Ltd., Merrickville (Ont., Can.) mill was recently destroyed by fire, with a loss running into many thousands. The mill which was established many years ago had two sets of cards, 720 spindles and six looms.

**Indicates previous mention of project.*

Knit

Laurel Silk Hosiery Co., West Hartford, Conn., of which Salvatore Andretta is temporary receiver, will be allowed a permanent receiver. Mr. Andretta wishes to resign because of outside business pressure. Henry J. Calnen and William C. Locke, the latter of the Textile Machine Works, have been suggested for the place.

Real Silk Hosiery Mills, Indianapolis, Ind., have reopened on a curtailed program after being shut down for two weeks.

***Corinth (Miss.) Hosiery Mills, Inc.,** are pushing the installation of knitting machines and other equipment at their new local mill, and expect to begin initial operations early in February.

***American Full-Fashioned Silk Hosiery Co.,** Paterson, N. J., has no connection with the reported sale of property to **Pacific Hosiery Mills Co., Inc.,** at Van Nuys, a suburb of Los Angeles, Calif.

Pontiac Mills, newly organized knitting mills at Oswego, N. Y., have started production of knit rayon underwear fabrics.

Ashe Mfg. Co., Rensselaer, N. Y., sweaters, knit tubing and jersey cloth, is again running on full-time following the yearly shutdown for repairs.

Utica (N. Y.) Knitting Co. has announced a 10% wage reduction and adoption of a four-day-weekly schedule until further notice.

Oak Knitting Co.'s (Syracuse, N. Y.) plant in West Division St., idle since the concern moved to the South some two or three years ago, is reported as being sold to the American Stores of Philadelphia, Pa., which company will use the modern four-story brick building as its distributing point for this section of the state. The deal is said to involve over $200,000.

Schletter & Zander, Inc., Frankford, Pa., have resumed operations at their knitting mill after a shutdown of several months, giving employment to an entirely new working force of non-union operatives. For many years previous, the mill has engaged a quota of about 600 union workers.

Gotham Silk Hosiery Co. (Mill No. 3), Philadelphia, Pa., is shut down indefinitely, while its two other local plants are running on part-time. At Dover, N. J., 250 workers in the company's finishing department were laid off preparatory to removal of the departments to New York.

Paterson-Mutual Hosiery Mills, Philadelphia, Pa., have adopted a new wage schedule, affecting about 200 employees. The reduction is said to be over 10%.

Silk

Willimantic (Conn.) Silk, Inc., plans the immediate erection of a one-story brick plant 53x222 ft., to be used for a silk throwing mill. About 75 additional employees will be taken on when the work is completed, bringing the total to 400. **Kobe Silk Co.,** a branch, now employs 110 hands. Both firms are operating day and night shifts.

National Spun Silk Co., New Bedford, Mass., has advanced production with the adoption of a capacity schedule, and expects to hold at that basis for an indefinite period.

Durable Silk Co., Paterson, N. J. Following recent appointment by the Court of Chancery, Nathan Subin is acting as receiver for this company.

Lancaster Silk Mills, Inc., New York. The Irving Trust Co., New York, has been appointed receiver for this company, which operates a mill at Myerstown, Pa. Liabilities are stated at close to $225,000, and assets, $125,000.

Topton Weaving Co., Allentown, Pa., recently organized to operate a silk mill, will be represented by Ervin S. Kutz, 604 Chew St., Allentown, one of the incorporators and treasurer. Other incorporators include August Dehman, 401 East Linwood Ave., Allentown; and Nelson F. Fisher, Topton, Pa.

Joseph Wien & Sons Co., Inc., Bethlehem, Pa., manufacturers of georgette satin and canton crepe, are running full capacity and increasing the number of employees.

Lehigh Valley Silk Mills, Bethlehem, Pa., have placed orders for $75,000 worth of additional equipment for their two plants and have opened another branch mill. The new equipment will increase the output 40%.

Nell-A-May Plush Co., Chester, Pa., has been organized with a capital of $75,000, to take over and succeed to company of same name with local mill, heretofore operated as a co-partnership. Officials of the new company will include Earle M. Shuster, 12 Gladstone Rd., Lansdowne, Pa., who has been one of the partners in the former organization, and Rolland P. Lutes, who has been elected treasurer.

Kutztown (Pa.) Silk Co. In addition to Herman J. Zeitsch and Harold Mumma, 2350 Walnut St., Allentown, Pa., president and treasurer, respectively, of this company, George F. Robbins, 2350 Walnut St., Allentown, and Mitchell E. McNeal, 1209 Cambria Ave., Windber, Pa., will be identified with this company, which was organized recently with a capital of $25,000, to take over the Kutztown mill of the **Amalgamated Silk Co.**

Duplan Silk Corp., Hazleton, Pa., plans to resume operations Jan. 15. The plant has been closed since Nov. 17, following a strike by 1,800 employees, in protest against wage cuts. The company stated that efforts would be made to find work for as many of the old operatives as possible.

J. H. Olldorf Silk Co., Peckville, Pa., has been organized with a capital of $63,000, to take over and succeed to the local silk mill, heretofore operated under the name of **J. H. Olldorf.** Mr. Olldorf, Jessup, Pa., will be head of the new company and has been elected treasurer. Other incorporators include Clement J. Pressman, Forty Fort, Pa., and Matthew D. Mackie, Scranton, Pa.

Kingsport (Tenn.) Silk Mills will increase production about one-third as soon as the new equipment has been installed. Nine carloads have been purchased.

Rayon

DuPont Rayon Co., Old Hickory, Tenn., has resumed operations at its mill, following a shutdown over the holiday period.

***Canadian Celanese, Ltd.,** Drummondville (Que., Can.) has about completed its expansion program and new equipment, which will increase productive capacity by about 50%, is gradually being brought into operation. The company is expending approximately $2,000,000 on plant enlargements and improvements, an outlay that is being financed from current earnings. The plant is running day and night. About 2,000 workers are at present employed and the staff will shortly be increased to about 3,000.

Finishing

Standard Bleachery & Printing Co., Carlton Hill, N. J., has been organized under state laws with a capital of $100,000 and 4,000 shares of stock, no par value, to take over and operate the **Standard Bleachery Co.,** and will be operated personally by A. G. Poor and E. E. Poor, Jr. The notice states that in addition to the bleaching, the new owners, through their managing connections with **Passaic Print Works,** will offer to the bleachery customers facilities for all kinds of printing. Robert I. Bright, solicitor, has his name signed to the notice.

Sayles-Biltmore Bleacheries, Biltmore, N. C., are now operating on a schedule which gives employment to 500 operatives.

***Southern Bleachery & Print Works, Inc.,** Taylors, S. C., have put into operation the fifth and last of the printing machines which were moved from the plant of **Rockland Finishing Co.,** Garnerville, N. Y., some months ago. The plant is operating at full capacity day and night.

Miscellaneous

Ashaway (R. I.) Line & Twine Co., manufacturer of fish lines and cords, has started work on an addition to its dyehouse, which will cost about $20,000.

Virginia Braid Co., Scottsville, Va., according to reports, is to be enlarged by consolidation with the D. M. Landing Co., Inc., of New York. Machinery and other equipment is being removed and installed in the Southside plant.

Metal Textile Corp., Ltd., Hamilton (Ont., Can.), has been organized by John R. Marshall and Stanley R. Jeffries, both of Hamilton, with capital of $40,000, to manufacture metal fabrics of various kinds.

Caldwell Linen Mills, Ltd., Iroquois (Ont., Can.), have awarded general contract for an addition to their plant, which is to be one-story and skylight, 90x100x16 ft. high, reinforce concrete block granite facing, concrete floors. A 50 horsepower boiler is to be installed; also 50 looms and 100 tons of additional finishing machinery.

**Indicates previous mention of project.*

Questions and Answers

We undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to TEXTILE WORLD. We do not undertake, however, routine analysis of yarn or fabric, or investigation involving unusual expense.

Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as evidence of good faith.

Letters expressing opinions or voicing criticism are cordially invited. These will be signed by the correspondent's name unless the letter itself contains a request that the name be withheld.

—EDITOR.

Predetermining Contraction in Crepe-Twisted Yarns

Technical Editor:

I am interested in learning of some method of predetermining the amount of contraction in crepe-twisted yarns with special reference to rayons. For instance, what would be the contraction in 75, 100, 150, 200, and 300 denier twisted 25, 35, 45, 55 and 60 turns? Does the number of filaments in any way affect the amount of contraction? If it is possible to calculate this take-up, it is my thought to make up a chart containing the different yardages per pound for use in cost work.

Perhaps you can also give me some information as to how the amount of twist in the filling will affect the cloth shrinkage. (7416)

There is no method by which the actual contraction of yarn can be determined when the cotton or rayon yarn is being crepe-twisted. There are methods of figuring the speed of the rolls on the spinning or twisting frame; but even if the figures thus obtained are correct, this does not mean that the figured turns per inch will be in the cotton or rayon yarn when it is taken from the spinning frame or twister. That is the reason why the term 32 to 36, or 55 to 65, turns per inch is used when speaking of crepe-twisted rayon or cotton yarns. Cotton yarns do not contract so much as rayon yarns because the cotton thread is softer and more elastic than is the rayon thread.

If the actual amount of contraction could be determined, it would be possible to spin either a rayon or cotton thread before it was given the crepe-twist, so that when the yarn was hard twisted, it would be the actual count or diameter of the same yarn given the ordinary twist. That is, if a 60/1 cotton or a 75-denier rayon crepe-twisted yarn were called for, in order to keep this yarn to the count of 60/1 cotton or 75-denier rayon while being twisted, the cotton thread or the rayon thread would have to be spun of a finer count before being twisted, so that the resultant twisted thread would actually be 60/1 cotton or 75-denier rayon. This method is not used, for it would mean the carrying of too many sizes of yarn. Mill practice is to take the yarn that is on hand for ordinary purposes and insert the crepe twist that is called for. After the yarn is twisted, 120 yd. are reeled on a wrap reel; this is one-seventh of a hank. The skein thus obtained is weighed on a grain scale and the weight in grains is divided into one-seventh of a pound (1,000 grains). The answer will be the count of the twisted yarn. Only in this manner can the contraction due to twisting be determined. It is safe to say that rayon yarn, crepe-twisted from 55 to 65 turns per inch, will gain about 8% in weight during the twisting. Cotton yarn of the same crepe twist will gain about 3%. This gain in weight should be averaged from successive weighings, since it will vary considerably.

From 8 to 8½ times the square root of the count is a safe figure to use for crepe twist. We do not believe that the number of filaments has any influence on the amount the yarn will contract during the twisting.

Relative to the influence of the twist in the filling in the shrinkage of the cloth, we might say that if the correct turns per inch of twist is given the filling, the matter of shrinkage of the cloth is in the hands of the finisher. It is customary, when shipping cloth to the finisher, to state the finished width wanted. If the instructions are followed and the finished cloth is returned measuring the width requested, the condition of the cloth, as pertains to creping, is then up to the maker of the gray or unfinished goods.

◆

Bandage Lacks Elasticity

Technical Editor:

We have been trying to make an elastic bandage similar to the enclosed sample, but of a lighter weight. By comparison you can readily see that our goods do not have the high elasticity of the other sample. We used 100 ends of a hard-twist 60/2 combed peeler, alternate threads right and left twist, and 30 picks on the loom of 10/1 bleached cotton. The warps were run with very little tension and with fine edge wires. The sample was then boiled in water for 30 min. and dried. What method can we use to obtain better results? Are we using the proper yarns? In the boiling should we use something to give us more shrinkage? (7424)

There are several changes in the construction which will have to be made before you can hope to obtain the results you are seeking. In the first place, we estimate your warp yarn at not over 20 turns per inch. This is often considered hard twist for 60/2; but for the purpose at hand, if you insist on using 60/2, you need a crepe twist of at least 60 turns per in., and perhaps even more. This excessively hard twist is one of the essential points in the manufacture of this type of material. It is proper to use alternate threads of left and right twist. The reduction of warp tension is of no particular advantage; in fact, with the crepe-twisted yarn, plenty of weight will be required.

Next, the number of picks should be reduced about one-half—at the most you should have not over 18 picks per in. with 10/1 filling. Theoretically, the smaller the number of picks per inch, the more chance the material has to shrink. There is no advantage in using

a bleached filling yarn. On the contrary, it would seem to us a disadvantage and an unnecessary expense.

Finally, the woven material should be boiled for not less than eight hours in clean water to which has been added a quantity of soap such as is used in kier boiling. The finished material should measure less than 50% of the length of the woven goods, and the number of picks should be more than doubled.

◆

Zebra Effect in Grenadine Hosiery

Technical Editor:

We are sending you herewith part of a grenadine stocking which shows a zebra effect and which is very uniform. Can you give us any information that will enlighten us as to what happened? For your further information, the yarn used was a 2x2 grenadine. While we have not had much of this effect, nevertheless we are extremely anxious to find out just how it was done. (7415)

We find these stripes are caused by uneven twist of the silk. We have made a large number of twist tests and find that the twist varies from 35 to 52 turns per inch. In the portions of fabric where it shows up clearly, the twist runs from 35/38 turns per inch. In the streaky places, it runs much higher; and where streaks are most pronounced, the highest twist is found, running from 50/52 turns per inch. This explains the entire cause of the zebra stripe.

◆

Sizing and Polishing Twine

Technical Editor:

Will you kindly give me a formula for sizing and polishing twine just like the enclosed sample? I have a polishing machine which I have been using for polishing tufting and roll-edge twine, and presume it will do this work. (7407)

On this class of work the best results are obtained on a special English-type polishing machine, although good results may be secured from a Luther-type, brush-dressing machine by reducing the speed of the take-up and increasing the speed of the crease rolls. The thread should dry very slowly, and it is necessary to reduce the speed to the lowest possible point which will allow this. We also suggest using as heavy a spindle band as possible to obtain the maximum draft on the thread. To permit this heavy thread to dry properly, the speed of the crease roll is increased as much as possible; otherwise it will finish flat rather than round.

We also suggest loading this machine to not over 60% of its capacity and running the brush at full speed. The finish used for gray, unboiled yarn is different from that for boiled yarn, due to the fact that unboiled yarn is resistant to the size on account of cotton-seed oil and waxes, whereas in a boiled yarn the waxes and natural oil have been removed, and the thread is more absorbent. After twine is dressed, we recommend it be allowed to stand overnight before winding on the tubes to permit the sizing compound to dry out as thoroughly as possible. The formula for gray twine is as follows: 20 lb. wheat flour; 7 lb. sago flour; 2 lb. beeswax; 4 lb. gum tragacanth; 1½ lb. tallow; 3 lb. ground fish glue; 10 lb. Feculose ET, and 2 oz. bluestone. Make up to 50 gal.

The following formula may be employed for finishing cotton twine which has been boiled out and dyed: In a 50-gal. barrel mix 22 lb. potato starch, 5 lb. corn dextrin, 2 lb. coconut oil, 2 lb. beeswax, 4 lb. gum tragacanth, 1 lb. tallow, 3 lb. ground fish glue, 10 lb. Feculose ET, and 2 oz. bluestone.

We also suggest using a small amount of color in the size, since in many cases the size changes the shade of the dyeing. By adding a small amount of color, the finished twine will have brighter finish in color. Use not over $\frac{1}{16}$ oz. of basic color per gallon of size. For blacks, use $\frac{1}{8}$ oz. of a pure direct black per gallon of size.

THOUSANDS of inquiries are handled annually by the Technical Editors. In order that as many readers as possible may benefit from this service, we select problems of general interest for publication each week.

◆

Rust Stains on Bleached Hosiery

Technical Editor:

We are enclosing a pair of silk stockings which contain small brownish spots. These spots are not noticeable when the stockings are first paired and boxed, but develop after the goods have been packed for about three months. We are at a loss to understand the cause. Our method of bleaching is as follows: The hosiery is first degummed in a boiling soap bath, after which it is given two rinses at 200° F., followed by a lukewarm rinse. After extracting, 180 lb. hosiery is entered into the prepared bleach bath. The bath is made up of 450 gal. water, 10 lb. sodium peroxide, 14 lb. sulfuric acid, and 9 lb. sodium silicate. The temperature of this bath is 140° F. The hosiery is allowed to remain in the bath about eight hours, and is then given a light rinsing before removing from the bleach vat. The lot is next transferred to a rotary Monel-metal machine, where it is given another rinse. The goods then receive a light soaping, and again are rinsed. Finally the goods are blued in a bath which is slightly acidified with formic acid. The bleach vat is of wood, containing a closed lead coil for heating. No metal other than the lead pipe comes in contact with the bleaching solution. Soft water is used throughout the bleaching process, and special precaution is taken to filter the water through felt.

We shall appreciate any information as to the cause of the development of these brown spots after the hosiery is packed. (7395)

Chemical tests on the stains found on the hosiery submitted show without a doubt that they are iron oxide. We note that you take considerable precaution to prevent contamination from iron. Perhaps you have overlooked overhanging pipes, hydro-extractors,

flying lint which has been deposited on rusty iron pipes, etc. The fact that the stains do not appear until the hosiery is placed in storage lends to the belief that the iron is first in the material as metallic iron or steel, which oxidizes in storage to form the brownish stain. Metallic iron or steel could easily be passed by an inspector, since it would resemble a tiny speck of dust, if seen at all. The use of formic acid in the bluing would tend to retard the appearance of the stain. The metal might be picked up from your knitting machines from the oil; or it could be that the oil is contaminated. Another possibility is that the silk thread itself may contain particles of iron or steel dust.

◆

Warp Stickers in Silk Flat Crepe

Technical Editor:

Will you give me your opinion as to what causes the defect known as warp stickers? We are running flat crepe constructed as follows: Warp: Japan 20/22 gage; entering 48/3/2 on six-shaft; weave, taffeta. Filling: Canton, three-thread, 14/16; picks 64. These stickers come up from time to time in weaving and cause otherwise nicely woven pieces to be seconds.

Another matter I wish to ask your opinion on is the proper method for making the warper crossing to so place the lease cords as always to have an open shed in weaving with the same end always in the same shed. (7446)

The warp construction is an excellent one for production and, if the warp is made right, should be woven without trouble. This fabric is a present-day number made in great quantities for prints and can be made correctly with the 20/22-denier Japan silk.

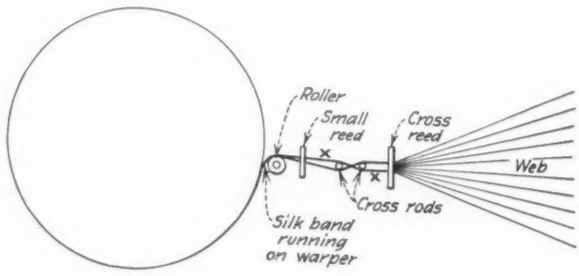
The warp stickers are caused in the warping. This defect may be due to the carelessness of the warper or to his lack of knowledge. By carefully watching the method he uses in warping, one can determine exactly where the trouble lies.

Stickers are often caused by setting the bands too close. This makes one band overlap the other, with the result that the ends will be twisted together in beaming and a sticker will run entirely through the warp. A fair distance between bands is about $\frac{1}{16}$ in. Many warpers need a band setter on the table to guide them, but after a little practice there is no reason why a warper should not be able to set the bands if necessary without dependence on the mechanical part of the machine.

Lively silk will often cause trouble resulting in stickers. By "lively silk" is meant silk which has not been sufficiently soaked. The practice of preparing silk with little or no soaking makes it run better in the looms, but causes trouble in the warping at times. The warping machine must not stop too quickly, and it should have no back-lash. When it stops quickly, or has back-lash, the ends from the creel will fly, causing a twisted band at the table; and this spot will make a sticker in the loom.

Your warpers should be taught regarding the proper method for placing in the lease or tangle strings. In starting out the warps, all the tangle strings should be placed in exactly alike in each warp, except that in the one warp the strings should be closed on the first cross, which is called the twisters cross, and also on the second cross, called the cross-rods cross; on all the following crosses they should be open. In starting to warp, the first and second crosses are started up and then down on the cross reed and all the balance of the crosses placed in down and then up, or *vice versa*. If you adopt the following method exactly as given, your troubles with stickers will be over.

Regardless of how your warping table is arranged at the present time, change your rollers, small reed, and cross rods to the relative positions shown in the illustration. The front roller is about 1 to 2 in. from the warping paddles. Remove all the other rollers. Next comes the small reed, and the cross rods are placed between the small reed and the cross reed. (On many machines the modern type of table carries three rollers, the cross rods being in front of the small reed.) In warping, the ends *X* are placed on the machine in such a manner that they will be on the bottom when beamed, and they should be run into the cross rods on the loom in this manner.



Arrangement of warping table to eliminate stickers

Avoid sponges, blotters, and other devices which some warpers use to keep the silk from flying. Such devices are often the source of trouble. Warpers should keep their arms out of the silk as much as possible when beaming. Reaching in to break an end while the beam is running will cause a very bad sticker.

◆

Uneven Shades and Streakiness in Full-Fashioned Hosiery

Technical Editor:

We are enclosing three stockings. No. 1 is marked "Two kinds of silk," No. 2 is marked "Two shades of silk when finished," and No. 3 is marked "Streaky silk." Each sticker is placed at the point where the defect begins. We should appreciate your opinion as to the cause of these defects. (7406)

In our opinion there is no difference between conditions in samples Nos. 1 and 2. We believe that the difference in shades in both instances was produced by employing silk from different lots. If you are buying thrown silk, a certain amount of this trouble may be expected; and we know of no way of overcoming the trouble, as silk of different lots, although of the same satisfactory classification so far as evenness, cleanness, etc., is concerned, will frequently show a marked difference in dyeing.

Similar trouble can also be produced by different

ageing of the same silk; that is, one cone of silk may be re-wound and allowed to stand around for a day or two before being used, and then employed in connection with a freshly wound cone. Likewise, the trouble can be caused by allowing press-offs to lie around for a day or two before being topped back on; and it is possible that difference in shade in sample No. 1 was caused by this procedure. However, we believe that the defects in both No. 1 and No. 2 were caused by different lots of silk.

In sample No. 3 we find that the streaks were caused by uneven twist in the silk. You do not so state in your inquiry, but we find your samples to be grenadine hosiery; and we understand that there is considerable trouble being caused among grenadine knitters on account of uneven twist in the silk.

Preparation of Cotton Raw Stock for Dyeing in Vacuum Machine

In the Nov. 29, 1930, issue of TEXTILE WORLD we published a letter from one of our readers which invited discussion on the methods of preparing cotton raw stock for dyeing in a vacuum machine. A number of the replies received appeared in the Dec. 27 issue, and others are printed herewith.

Scouring Aids Level Dyeing

Technical Editor:

From all the experience I have had in dyeing raw stock, not only with sulfur colors, but also with direct, vat, and developed colors, I have found that soap and a harsh soda are not the proper boiling-out and wetting-out agents. Soap acts as a resist, unless the water is very soft, and is free from iron, magnesia, and calcium. Any of these minerals will cause a deposit on the cotton stock and form a lime soap which is the cause of uneven dyeing. Soap combined with a harsh soda will cause dust and harshness during the carding and spinning, thereby giving further trouble.

I recommend using 2½% of trisodium phosphate, 1% of ammonia, and 2½% of kier oil. The kier oil is made up with two-thirds of a barrel of 50% sulfonated castor oil, 7 gal. of pine oil, and 5 quarts of Hexaline. Work the pine oil and Hexaline with 32 gal. of sulfonated castor oil for about 20 min. Then fill the barrel with cold water and mix together thoroughly. Use 2½% of this stock solution to 100 lb. of cotton. Give the stock a slight washing after boiling out. By giving only a slight wash, some of the boiling-out chemicals will remain in the stock. This will assist in securing level dyeings, and will leave the stock soft and in good condition for spinning and carding.

The cost, including the trisodium phosphate and wetting-out agent, should not be over 1/3 cent per lb. A mixture of pine oil and Hexaline is a good solvent and has excellent wetting-out qualities. A small portion of this kier oil could be added to the dyebath if desired —about ½ to ¾% would be sufficient. F. C. K.

Boiling Out Necessary

Technical Editor:

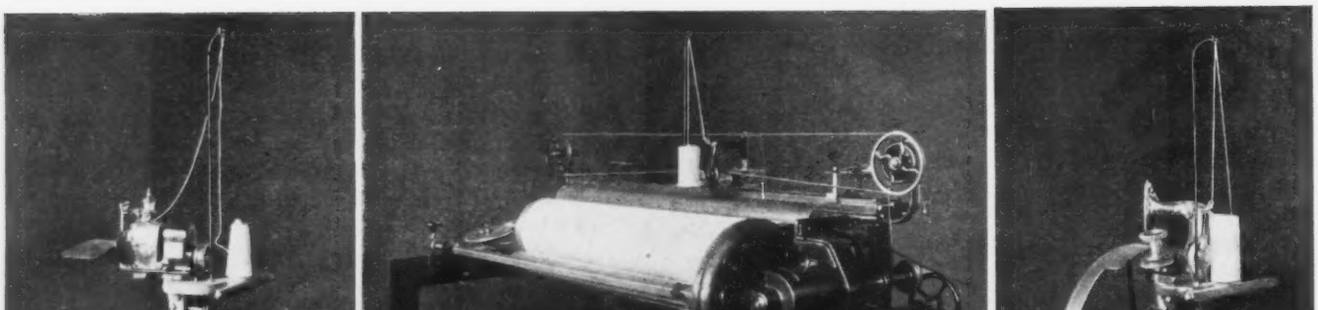
The first consideration in vacuum-machine dyeing is to have a uniform mass of the material which is to be dyed. This means that the cotton must be well opened, evenly packed, and firmly compressed. If the machine is filled with a mixture of hard lumps, as delivered by the baling machines, interspersed with loose cotton, there can never be uniform compression. The result will be that all the liquors forced through by pressure will find the easiest channels and avoid the obstructions. Because of this, there will be much over-dyed material and a corresponding amount of undyed cotton. While carding may seem to equalize this unevenness, the average fastness to both washing and crocking can never be as good as in a uniformly dyed lot.

There is no question as to whether the lot should be wet out before the actual dyeing; the only question is what material will be most economical and still give the required degree of efficiency. What we must accomplish is to wet the cotton fibers throughout the mass so there will be no air pockets and so the dye liquors will be readily absorbed. When we are dyeing with sulfur colors, the dyebath itself will not only remove the natural waxes of the cotton, but will even dye a full shade through spots of mineral oil. If a standing bath is to be maintained, all this dissolved material will accumulate, and in a short time the quantity may become objectionable. If the cotton is wet out first, it is in a cleaner condition for dyeing and will give a more brilliant and faster shade. There have been noted many cases where a low grade of cotton, containing seed hulls and cottonseed oil, dyed with sulfur black, caught fire spontaneously in the dryers. Clean cotton would not do this.

Soda ash is the cheapest material that can be used and is probably the most efficient; an addition of soap will increase the expense but whether the advantages will justify this extra expense is a problem for each dyehouse to work out individually. The soluble oils have been shown to have their greatest efficiency around 140° F., and not at a full boil. There are a number of excellent wetting-out preparations which should always be used when dyeing vat dyes, but which might prove too expensive to use with the cheaper sulfur colors. One class consists of pine oil mixed with hydrocarbon solvents, and the other class represents definite organic compounds that have the property of reducing surface tension.

It appears that a boil-off with soda ash will fully justify the slight extra expense, and if a mill is doing its own dyeing, it will find that the addition of soap will give better results in the carding and spinning, because all sulfur colors have a tendency to harshen the cotton fiber and require a softening agent. Level dyeing depends on uniform packing of the machine and a careful adjustment of the amounts of sulfide and salt; if these conditions are met, it is not difficult to get perfectly even dyeings with almost any sulfur dyestuff.

P. I. C.



Three new sewing machines with individual motor drives permit high-speed operation

New Machinery & Processes

High-Speed Sewing Machines

THREE new sewing machines, each embodying a number of refinements and improvements, have been placed on the market recently by Curtis & Marble Machine Co., Worcester, Mass. These are a No. 20 rotary machine with motor drive; No. 20 rotary motor-driven machine with Merrow head; and a Type S sewing, measuring, and winding machine.

Advantages made possible by the application of motor drive to the rotary machine are quicker and easier stitching than is possible with foot power. In addition, better sewing is facilitated by changing the position of the head. The machine, which is of the portable type, is supplied with an extension cord so that it can be connected readily to the nearest lamp socket. A foot treadle operates the starting and stopping switch.

Application of motor-drive to the rotary machine with Merrow head enables sewing of a flat, butted seam at high speed. A feature of this equipment is that no cloth wheel is employed, the regular feed motion of the Merrow head sufficing to carry along the cloth. Since the sewing machine trims the end of each piece just in advance of the stitching, a flat, butted seam which requires no further trimming is produced. This machine is supplied with attachments similar to those in the rotary machine and is operated from any convenient lamp socket by means of the foot treadle.

The sewing, winding, and measuring machine is especially designed for silk, rayon, and other light-weight fabrics. A Singer head is used, operating on the railway principle, so as to make a straight row of chain stitching with a single thread. A measuring drum 1 yd. in circumference is connected to a dial to permit measurement of the goods, which may be put in rolls as large as 24 in. in diameter. Winding is controlled by means of a variable-speed device so that the speed most suitable can be used at all times, depending on the goods and also the size of the roll which is being wound up. This is an important feature since the speed of the cloth and the force tend to increase gradually as the diameter of the roll which is being wound up increases in diameter. The machine is equipped with ball bearings and is driven by a $\frac{1}{4}$-hp. motor which may be operated from any lamp socket.

Wear-Testing Machine for Carpets

ANNOUNCEMENT has been made recently of a new type of wear-testing machine developed by the engineers of the Mohawk Carpet Mills, Amsterdam, N. Y. This machine provides an off-center disk, which in its revolutions rubs the carpet with an abrasive surface which tends to pull out the pile. Actual tests with this type of machine are said to prove that frequently a fabric ordinarily considered inferior in durability will outwear a higher-piled, apparently more durable one, providing the latter is manufactured with a looser weave.

The Mohawk Carpet Mills does not claim complete originality with the new type of machine, since it was adapted from specifications of a wear-testing machine being developed by the Bureau of Standards of the U. S. Department of Commerce. This new type of machine operates by revolving a heavy weight with a circular movement over the carpet being tested. This movement not alone puts pressure upon the pile, but also subjects

it to a slight twisting movement, similar to that of the human foot in walking upon the carpet. The wear provided by this new machine, therefore, approximates the wear which the carpet gets in actual use.

Finishing Machine for Axminsters

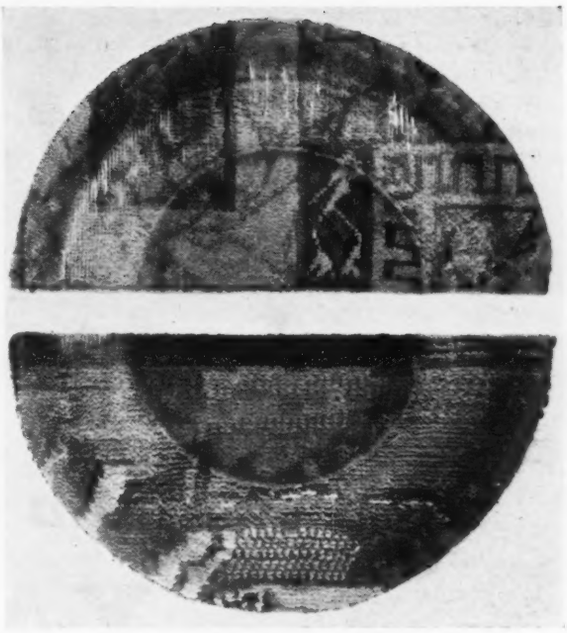
SIZING of Axminsters is facilitated with a new finishing machine developed by H. W. Butterworth & Sons Co., Philadelphia. The machine consists of a friction-let-off back-sizing unit which sizes carpet in the usual manner. From this machine the carpet goes over a steam box which steams the back of the carpet under pressure, and then around a large copper cylinder, which not only dries the carpet, but stretches it and irons it at the same time. The carpets are fed into the machine in a continuous manner.

A feature of this machine is that it does not allow the size to cake on the back of the rug, but pushes the size into the back so that the sizing does not have a tendency to crack off. Due to the additional amount of steaming, it leaves the pile in a much finer condition. The machines are made in various sizes up to 24/4, and require only a small floor space.

Electric Brazing Equipment

ELECTRIC brazing equipment utilizing the resistance principle has been announced recently by General Electric Co., Schenectady, N. Y. Brazing with this equipment is caused by the heat generated by the flow of electricity through carbon blocks. Since these blocks offer high resistance to the flow of electricity, the heat generated is correspondingly high and but small pressure is needed to complete the joint. Among the advantages claimed for this method over soldering are the following: Less time is required; brazing is less expensive; and the conductivity, mechanical strength, and durability of the joint are higher than those of the lead joint.

The equipment consists of a transformer, foot switch, and tongs for holding the carbon blocks and work. The sizes of the various parts depend on the size of work to be handled and joints to be made. The various parts to be brazed are either designed with flat surfaces to begin with, or are flattened before brazing. After the work is clamped in the tongs, flux is added and the current is turned on by pressing the foot switch. When the flux melts, the brazing alloy is held against the hot metal until alloy flows into the joint by capillary attraction. During the process of brazing the hot alloy dissolves a thin film of the metal surfaces, thus forming a new alloy rich in copper and with a higher melting point than the original alloy.

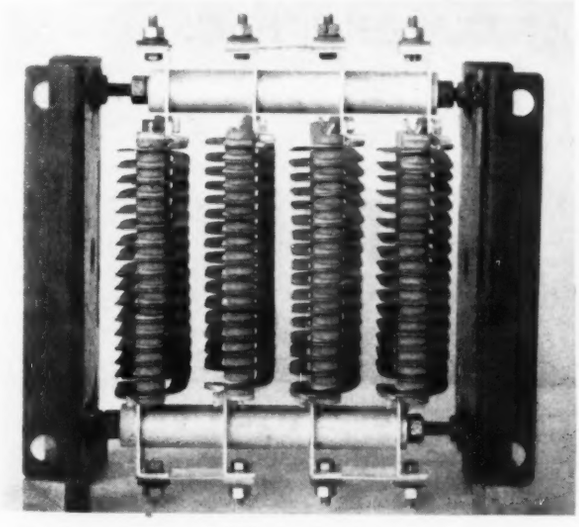


Results of comparative wear test on carpets

Edgewise-Wound Resistors

EASY connections to rigid terminals are made with an edgewise-wound, heavy-duty resistor recently placed on the market by the General Electric Co., Schenectady, N. Y. This resistor, designated CR-9132, is of the unit-box type. Advantages claimed for the new resistor include unbreakable design, non-corrodible conductor, and maximum heat dissipation for minimum space consumption.

The resistors are mounted on a support consisting of two steel punchings held firmly together, but insulated from each other by a new form of heat-resisting molded insulation. Cleats of fired alumina insulate the resistive conductor from the support. The cleats are locked in place after the unit is assembled by bending the projection on the support to prevent their movement. A copper connector, silver brazed to each end of the resistive conductor, permits bolting the extreme end of the resistive material to the support. The ends of these supports, together with clamps, provide rigid terminal connections for interconnections and for user's leads. Good contact between the connector and support is assured by tin-dipping the connector after brazing. The new units are offered in the form of a complete line of twenty sizes, covering a current range of from 22 to 136 amperes with a corresponding resistance range of from 2.5 to 0.058 ohms.



Edgewise-wound resistor permits easy connections to rigid terminals

Durene

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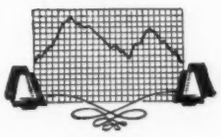

Better Balance Suggests Silk Passed Bottom

Relatively Low Levels Will Continue and Mills Must Avoid Overproduction, Says Dr. Haney

Summary: **The silk market is in better balance suggesting that the bottom of the market has been seen. Probably the recovery in prices has been somewhat too rapid, however, as a "turn for the better" does not mean that supply has been completely adjusted to demand. Buyers may well remember the large storage in Japanese warehouses. The trend toward improvement should be moderated and preserved by holding manufacturing in check.**

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The analysis and forecast by Dr. Lewis H. Haney, Director, New York University, Business Research Bureau, which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.

THE fundamental developments affecting the raw silk market are a downward trend (allowing for seasonal variation) in the combined storage in Japan and the United States and an upward trend in the domestic activity of silk machinery. There is still a maladjustment, and stocks of silk are still abnormally large. A distinct turn for the better, however, has occurred. The silk market should have discounted the worst of the maladjustment last October. We may, therefore, conclude that the lowest point in the market has probably been seen and that the recovery in prices in December was in response to reduced pressure. In the past such a reduction in storage along with sustained domestic consumption has always brought firm silk markets and the present case is probably no exception.

But the trade should remember that silk storage is still huge and that silk machinery activity in November had already reached a level very close to the peak, excepting only the pre-rayon year of 1925. Thus the supply side indicates that a relatively low price level must continue for some months, while the level of silk textile production suggests the possibility of renewed difficulty in maintaining the prices of goods. If the mills adjust their policies to the situation intelligently, we may hope for continued stability of silk prices (with the aid of continued Japanese control over stocks). But is there not some danger of renewed over-production of silk textiles? If so, a temporary curtailment of mill consumption and a reaction in the market would become probable before the end of the first quarter.

Favorable Factors

Tending to support the raw silk market are the following:

(1) According to the Raw Silk Exchange, the world production and consumption of silk are in balance.

(2) The "free stocks" in Japan are rather small, as the filatures have curtailed; warehouse silk storage continues to be held intact.

(3) The Japanese domestic consumption of raw silk has increased sharply.

(4) United States "deliveries" in December were larger than generally anticipated.

(5) Well sustained wholesale sales of silk goods and increased spindle and loom activity continued through November.

(6) Stocks of silk goods held by wholesalers in the New York district at the end of November were 15% under a year ago.

(7) Sales to the cutting trades reported as improved; large yardage required for pajamas, etc.

(8) Low prices for good silks are stimulating the demand; chains and mail order houses reported to be selling a good volume of prints.

(9) Cantons continue strong.

Unfavorable Factors

Tending to depress the silk market are the following:

(1) World supplies of raw silk are very ample, the total visible supply being far in excess of requirements.

(2) Increased stocks at New York.

(3) Some indications exist that the production of broad silks may be exceeding the demand at profitable prices.

(4) Thrown silk turns dull, a good many mills apparently having bought ahead.

(5) The hosiery trade continues depressed and hosiery sales are reported as poor.

(6) Silk manufacturers strongly resist higher prices on the ground that the existing higher level allows no profits.

(7) A good deal of financial difficulty exists among manufacturers.

(8) The sharp drop in silver prices seriously hurts Oriental business conditions and must react unfavorably on Japan.

(9) European silk industries are dull and depressed.

(10) Rayon prices sharply cut.

On the bull side, the salient points in the above appear to be reduced "free stocks" in Japan and some progress in stimulating sales of cheap silk goods in this country. On the other hand, the total storage is very large and the quan-

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tity in United States warehouses has increased again, while the Spring business in silks continues rather backward and the hosiery trade decidedly so. The factors seem to be about in balance at present. If Japan continues to support the market and the Spring business develops favorably, continued strength may be expected. The *Analyst* is still inclined, however, to look for some reaction before end of the first quarter —say late in February.

Statistical Position

December was a month of large volume, with imports, "deliveries", and stocks in this country all large. The figures, however, were in fair balance, possibly excepting the imports which were distinctly large in comparison with the deliveries.

The import figures are probably the notable point. At 64,616 bales, there was not only an increase in December (in which month the imports usually decline), but the figure was probably the largest on record for the month. The ratio of imports to deliveries has been exceeded in recent years only in 1929, though it was approached in December, 1926. The quantity in transit, however, was considerably reduced.

As a result, stocks at New York increased to 58,430 bales and have not been equaled at this season, except a year ago and in December, 1924—at least in the last decade. The stocks, however, are not at all excessive in comparison with the estimated current deliveries, and at 105.4% of the deliveries show the lowest ratio for December of any recent year.

No Downward Trend in Deliveries

The chief question, therefore, is—can the "deliveries" be maintained? They decreased in December, but the decline was less than usual for the season, our adjusted index showing a new high record of 120 based on the average for 1927-29. Thus no real downward trend has yet been indicated. Moreover, the activity of silk spindles and looms was strongly upward in November indicating a gain in actual mill consumption. Any unfavorable conclusion, therefore, must rest on other than the statistical evidence now available.

Warning Seems Timely

We may question whether (1) the manufacturers were not increasing activity too fast in November, and whether (2) the ratio of deliveries to actual consumption has not been so large as to indicate speculative takings in excess of requirements? It can be said that sales of silk goods (yards) declined about as much as usual for the season in November and that the hosiery situation continues unfavorable. With general business depressed and consumer purchasing power low, and silk manufacturing but recently recovered from a condition of over-production, some warning appears to be timely.

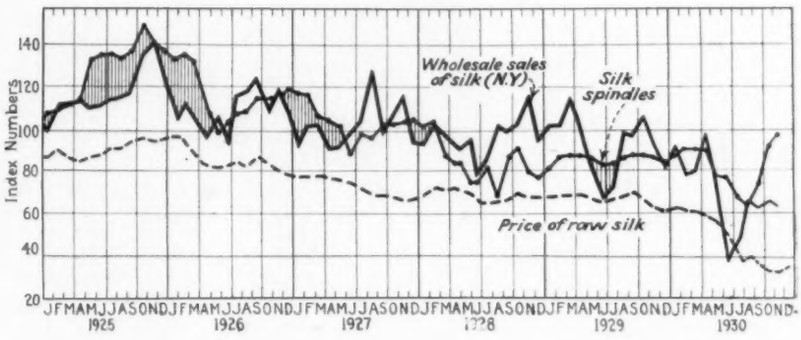

Fig. 1. SILK TRADE BAROMETER—Price of Raw Silk—Average of high and low Thursday prices of Crack Double Ex. (Journal of Commerce). Spindles—Per cent of available machine hours operated (Silk Association of America). Wholesale sales of silk (N. Y.) adjusted for seasonal variation (N. Y. Federal Reserve Bank). Average 1922-1925 = 100 for all indexes.

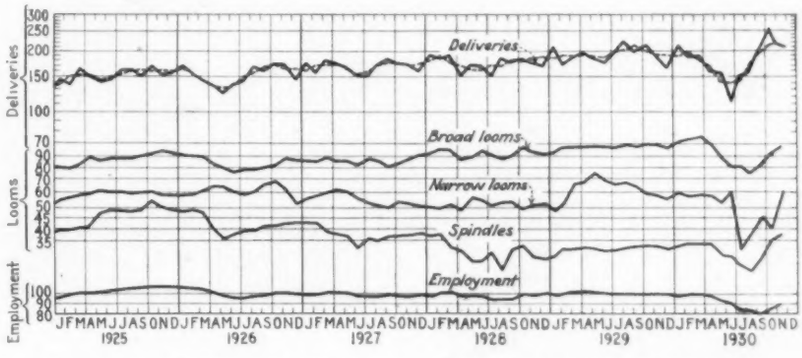

Fig. 2. INDEXES OF ACTIVITY IN SILK MANUFACTURING—Deliveries (heavy line). Bales 1921 = 100 (Silk Association). Monthly figures, dotted line; three-months' moving average, solid line. Broad looms, narrow looms, spindles, per cent active to total (Silk Association). Employment, number employed. Average 1923 = 100 (U. S. Bureau of Labor Statistics). All indexes in Fig. 2 are plotted on a logarithmic scale.

As to the world supply of silk, that is certainly ample. At the end of December the combined New York and Yokohama storage made a new high record. Were it not for the fact that over one-half of this total is not "free", but is held in Japanese warehouses, the market would certainly feel the pressure. The adjusted average of these combined stocks for the last three months is over double the average of recent normal years, while the domestic machinery activity in November was only about 9% above that average. It remains true, however, that silk manufacturing machinery activity increased sharply and has regained the level of February-March, 1930, preceding the mid-year slump.

World Supply Unchanged

The total world visible supply of raw silk remained practically unchanged in December. Japanese stocks were about the same, the quantity in transit declined and New York stocks increased. It is difficult to see how a mere shifting of the visible supply of this sort can give *sustained* strength to the market.

Price Trend.

In December, Cracks XX at New York averaged about $2.70, against $2.48 in November and $4.64 a year ago. This was the highest monthly average since last September. Throughout December silk prices worked irregularly higher, Cracks XX advancing 30 cents, and 80% seriplane silk at Yokohoma rising 80 yen to end the year at 680 yen. At this writing Cracks XX are quoted at $2.90.

The December advance reflected speculative activity in Japan, backed by increased spindle activity in the United States through November and a fair volume of goods sales at wholesale. Later data are not available, but *it seems clear that spindle activity has outrun the sales of silk textiles*, thus indicating some over-production. If so, this condition would confirm the argument that manufacturers must reduce their consumption of raw silk, probably resulting in a market reaction within a month or two.

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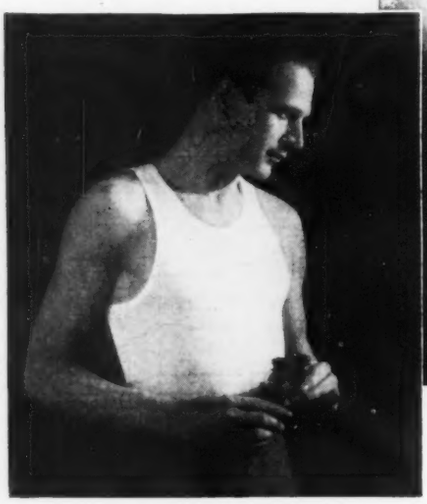

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Cotton Holds Steady

Trade Seems to be Awaiting Further Developments

COTTON market has remained quiet, but the rather more optimistic view of the general outlook in evidence at the turn of the year has been reflected by a fairly steady undertone. The action of the market would rather suggest a disposition to await further development of trade conditions or the shaping-up of coming acreage and crop prospects at prices ruling within 15 or 20 points either way of the 10½c. level for May contracts. There has been some trade buying as well as covering on the decline and possibly a little investment or commission house demand, but the advances have been checked by realizing or liquidation, although southern hedging has been little in evidence since Christmas.

Considering some rather unsettling features in the week's news such as the more serious development of the labor disputes with the threat of a general lockout in Lancashire following the strike and lockout at Burnley, the unsettled ruling of silver, disappointing domestic consumption figures and cotton cloth statistics, the steadiness of the market's undertone has attracted more or less general comment. There have been reports of trade buying orders for execution on a scale down from about the prevailing prices, which may have accounted in some measure for the ruling of the market, but there has been an absence of pressure which seems rather inconsistent with the extent of available supplies. The facts in this connection, according to some observers here, are that any distress cotton in the South was liquidated prior to the holidays and that recently there has been an absence of hedge selling, while there appears to be very little scattering long interest of a speculative character, with the result that contracts become scarce in the absence of short selling. This renders the market sensitive to comparatively small buying orders which make their appearance on the setbacks, probably on the hopeful view of improving general business prospects and reduced acreage in the spring.

As to the present technical position of the market, it is supposed that the cooperative marketing associations have replaced sales of spot cotton out of their seasonal pools with purchases of futures, and are holding a considerable line of these contracts in the local market for deliveries spread over the old crop months and probably extending into October and December. On the other hand, it is thought that the chief short interest represents hedges which have been sold by merchants against purchases of spot cotton on a tenderable basis in the South. The outcome of this situation can be only a matter of the vaguest conjecture and no doubt, will depend largely upon the trend of differences between months and the development of early coming crop prospects or of trade.

Meanwhile practically all reports indicate little business in spot cotton in the South, so far, at least, as new buying by spinners is concerned. On the other hand, there seems little selling pressure and when cotton does come out, it is quickly absorbed by shippers or merchants at the prevailing premiums on the late month futures. Domestic consumption for the month of December amounted to only 406,207 bales compared with 452,685 last year, which served to strengthen estimates placing the world's consumption for the season at around or slightly below 12,500,000 bales compared with last year's consumption of 13,026,000. All reports reaching here from the South indicate an intention to reduce cotton acreage and it is quite clear that the influences working in that direction are as strong and possibly as compelling as during previous periods of low prices.

Stocks at Memphis Declines

Memphis, Tenn., Jan. 12—Cotton receipts in this market have fallen off heavily, so that, despite light outward movement, the total stock has declined. Net receipts during two weeks have totaled only 15,855 bales against 58,501 the previous year and 70,298 the year before. Usually peak stocks are not reached until late in January. For the last two or three years receipts about this time have been swelled by shipments from the territory to avoid flood insurance. Owing to the low stage of the river and its tributaries, no one expects a flood this year; this fact no doubt is a factor but current light receipts also reflect the small yield and early-harvested crop in this territory.

Sales continue light, showing some but disappointing improvement over the holiday period. Sales for the week were proportionately better in this market than at other southern centers but were only 14,460 bales against 17,769 last year, making 468,493 bales for the season against 797,387 last year. There was little change in basis or in the demand for neglected staples. Demand centered on the medium and low grade ⅞ to 1 3/32 in. cottons. There was some inquiry for basis quotations on staples, which encouraged some hope that actual business may develop but was more generally regarded as merely for the purpose of keeping in touch. Such optimism as exists is based on reports that mills feel that a better demand for their product is in prospect; mill buying is confined to small lots, mostly in grades below middling. The new crop acreage is beginning to receive some attention but acreage ideas are not yet well enough defined to furnish a basis for analysis. There has been practically no new crop preparation.

Cotton Yarns Hit New Lows

Many Counts Lower Than for 16 Years

COTTON yarn prices are soft and declines of about ½c. have occurred this week. This parallels a drop in the raw material market, but there is also current, a trend toward contraction of spinners' margins.

Margins have reached a low point beyond which spinners do not care to go and many express their determination to stop production rather than continue to take business at less than cost. This has been evident in 20s-2 warps of ordinary grade.

Speculative Counts Soft

This count is speculative, production is large and many spinners are in the field. It means that this number and 30s-2 are selling as low or lower than 16s-2 or 26s-2 in many cases. Knitting counts, although slightly lower, are holding better than weaving numbers.

Carded cones are quoted at 19c. for 10s, but sales have been reported for ordinary quality ½ to 1c. less. Only scattered demand is coming from knitters. A wide range of counts are specified, making it clear that some manufacturers are on lightweights while others are operating on mediumweights. The largest sale reported was for 100,000 lb., carded cones sold for "less than 18½c. basis 10s."

Trading as a whole is more active than in December, but if sales continue on the same basis the month will be poor, not up to an average for 1930. Manufacturers are beginning to consider prices attractive, and while forward contracting is not so much in evidence there is a larger shipment from spinners' and dealers' stocks.

January Sales Disappoint

Yarn brokers and commission houses in the South are disappointed at the

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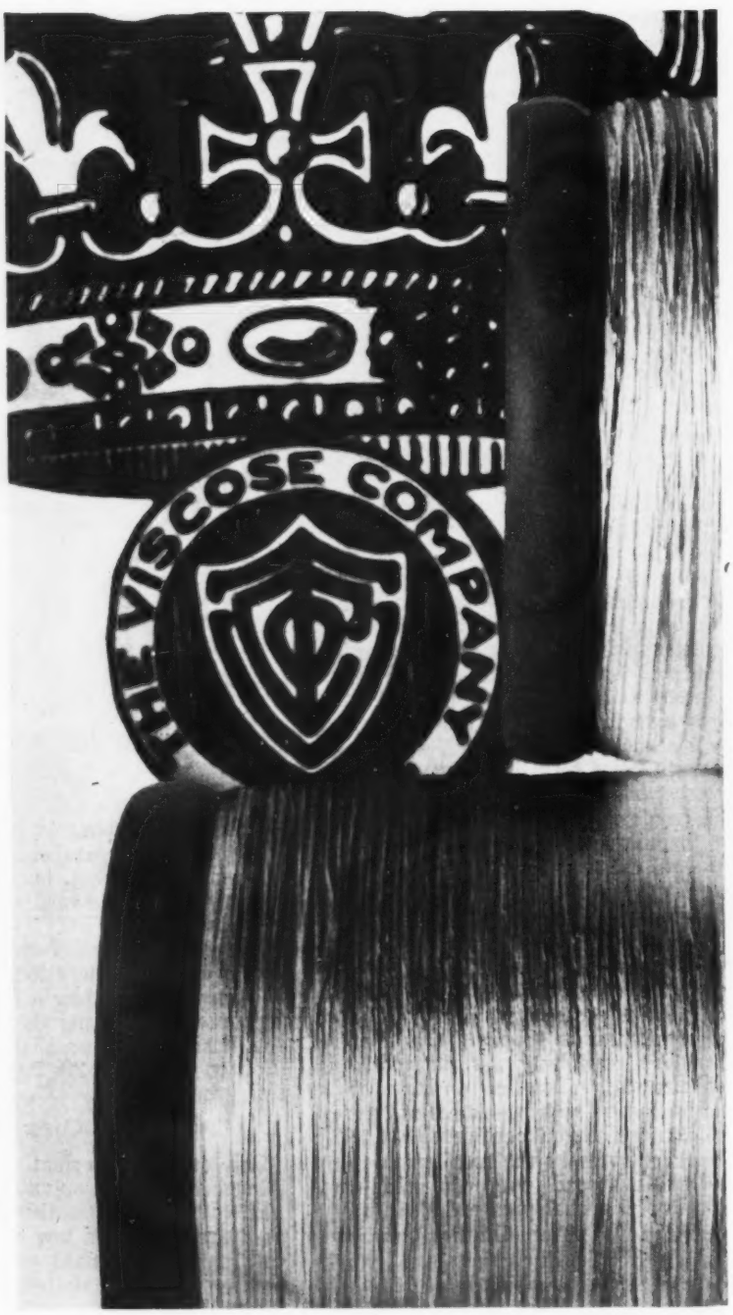

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small volume of business placed since Jan. 1, although certain houses report a fair increase since last week. It is near the time when many stockholders' and directors' meetings are held which may account for lack of interest from concerns with little yarn in stock.

Combed yarn spindles in Gaston County area operated last week at 46½% of normal capacity, showing this group is determined to keep stocks from increasing. Southern mercerizers do not believe that the cut in rayon prices will materially cut into the consumption of processed yarns, pointing to the fact that rayon has displaced mercerized in practically every case where the character of the synthetic fiber will permit.

Cotton Goods Act Well

Prices Strengthening And Sales Expand

THE last two weeks have been the most satisfactory ones that print and broadcloths have experienced for several months. The improvement has not been so much in volume, although the expansion in trading as compared with December rate of selling has been marked, but in the consolidation of price gains since that time.

There have been no important changes in prices of cotton fabrics, except that made in denims recently. Print cloths are selling more actively than any time in last month or more at the top range of quotations. Selling is well in hand and sellers have turned down inquiries for delivery after next April.

The situation looks more healthy than if we were seeing rapid advances. These will come but if they come gradually chances are they will hold better. The market gives the impression that it is headed upward but advances are not to be spectacular but will represent honest gains in manufacturers' position.

Print Cloths Active

Selling has been active in 64 x 60 print cloth at 5¼c.; 100 x 60 broadcloths sold at 7¾c.; both were active for spot and delivery through the first quarter; 80 squares were leaders in sales. Spot lots of the latter were moved at 8c., late January goods sold at 7¾ to 7⅞c.; February at 7½c., and March shipments at 7⅜c. Sheetings continued quiet although retailers' stocks are touching a low level.

Bureau of the Census reported production of all kinds of cotton goods in 1929 to have been 8,200,000,000 yd. The Hunter company estimates that 1930 production was close to 2,000,000,000 yd., less or on practically the same basis as 1919. This means a decline of about 25% in 1930 as compared with 1929. In spite of this stocks on hand have not decreased below the level touched at the end of March, 1929.

◆Cotton Waste Prices Steady

COTTON waste business continues on restricted scale with prices holding firm. Dealers seem content to await developments and are showing no disposition to force sales by offering desirable wastes below current market values. Relatively steady trend of raw cotton in the spot markets since the first of the year, and improvement noted in the goods market last week has had a moderately bullish effect, and sentiment is now more optimistic than it has been for some time.

Peeler comber is the most active stock, and is quoted currently on a basis of 85 to 87% of spot cotton. Comber from foreign cotton is much less active. The thread section of the market is steady and quiet. A few sales of single spooler for shoddying purposes were made on a basis of 7 to 7½c. Strips are in light demand at unchanged prices. Bedding stocks are neglected.

Domestic Wool Values Sustained

Large Stocks, New Clip Prospects and Low Foreign Market Impart Uncertainty

WOOL market exhibits a fairly good undertone. Dealers are hoping that the unfavorable market of 1930 will not be carried very far into 1931. Although mill demand is disappointing at the moment; it is believed that stocks of raw materials in the hands of manufacturers are at the low point for several years. During the last nine years manufacturers' quarterly holdings of raw materials have been on a steady decline falling from 302 million pounds at the close of 1922 to 145 million pounds March 31 last year, the low point for the period.

The wool trade is carrying a large bag of surplus wool estimated in some quarters at 150,000,000 lb. The selling of this volume of wool with the new clip only a few weeks away is the merchandising problem put squarely up to the National Wool Marketing Corp. which holds the bulk of the accumulation. Contracting for the new clip has already begun and advances are being made to farmers, but the matter of values belongs to the future. It is apparently the intention of the marketing corporation to sell this wool at prices that would make it attractive to mills faced with alternative buying of similar foreign wools at the same or even lower prices. Mill demand will, of course, be the chief factor. It is encouraging to note that, for the first time in several weeks, new business for substantial quantities on several grades is pending.

If any considerable quantity of wool is carried over into the new clip season, other things being equal, lower prices are considered likely. The situation will probably slow up independent contracting, but the marketing organization will of necessity be forced to go ahead with the policy of securing larger quantities of wool for merchandising under the new national system of marketing which has for its avowed object an ultimate complete control of the handling and selling of the domestic clip.

Wool consumption for concerns reporting showed a general decrease of 27% for January-November in 1930, as compared with the same period of the previous year. The largest decrease was among rug and carpet mills. Consumption in grease pounds in three divisions for 11 months of 1930 and 1929 follow:

	1930	1929	Per Cent Decrease
Domestic clothing.	252,524,000	311,092,000	19
Foreign clothing.	67,077,000	89,642,000	25
Foreign carpet...	80,496,000	147,021,000	45
Total.....	400,096,000	547,755,000	

Slow Demand for Recovered Wool

For reworked wool no orders of importance are being received and some of the large plants with big overhead and collectable accounts long overdue are experiencing in good measure some of the ill effects of the nation-wide business depression. Business in old rags is on a restricted scale and prices are quite irregular, some sales on light hoods at 9½c. representing the lowest price for a long period. Stocks of this rag are far from large and the selling at the low price mentioned can be accounted for, it would seem, only by necessity for cash. Some of the large graders are holding firm to their previous asking price of 11c. on this grade, free of silk. Some activity is seen in the several white rags which for the time being seemed stronger than colored sorts. The Dewsbury rag market is quite discouraged and general business conditions are worse than they were at the close of the year.

Recent report of the Bureau of Census on reworked wool production in 1929 gives the amount at 56,909,000 lb. as compared with 40,823,000 lb. in 1927. The year 1929 was a relatively good

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They represent the finest production of the largest producers of woolen and worsted cloth in the world and are guaranteed by the maker. For better values —demand *Ram's Head* fabrics.

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STYLES THAT SET THE STYLE

woolen year while last year was a poor one, so that in absence of information as to total 1930 output a reasonable estimate would be that it was approximately that of 1927. The hope of the market is that 1931 will be more of a woolen year, that owing to the very low prices at which woolen raw materials are obtainable, this division will be able to stage a comeback.

Wool Waste Barely Firm

Mill interest in wool waste continues very restricted. Dealers find difficulty in making sales although prices are on the bottom for many months. Until the mills get more light on the prospects of cloth business it can hardly be expected that they will do anything more than take on small quantities required for near use. Dealers for their part are looking over the contracting field somewhat more inclined to speculate on the certainty of a broader and stronger market as the weeks go by. In Bradford, the chief importing point for Boston buyers, values on all descriptions are much lower than they were a year ago

Camelhair Noil Imports

Another large consignment of camelhair noils arrived recently from the English market, about 40,000 lb. with the material selling on the street at about $1.50 per pound. It seems that there will be good business in some quarters for fabrics using camelhair noils. The market on wool noils is dull and yet has a better undertone. From now on, unless the unexpected happens, a firmer price level is likely to be seen.

◆Carpet Wools On Low Basis

CARPET wools are selling on a 20c. clean basis which compares with 42 to 46c. level a year ago. Decline has been one of the most drastic in the wool field. Main factor has been lack of demand from United States manufacturers and world-wide dullness. Carpet manufacturers say it represents a reaction from post-war prosperity and overproduction. Their business is now in good position to change for the better.

◆Spurt in Spring Men's Wear Fabrics

WOOL goods, particularly men's wear fabrics, have been more active than for weeks and there is a better tone. Buyers of men's wear seem to have awaked to the fact they cannot secure immediate delivery of wanted spring fabrics the day after they place orders.

Stocks are low. This has been pointed out for a number of weeks past but it fell upon uninterested ears. Now clothing buyers want actual goods, having finally sold their small stocks of winter goods. The situation was clarified also by end-of-year financial statements making credits mean more.

Better Trading Basis

Clothing houses are ready to send definite specifications with their orders where formerly they could not. This means that not only is the selling end more active but it is being felt by manufacturers who are pushed to make the deliveries wanted.

There is a better feeling in regard to prices. Buyers still talk of price reductions that will be made on next season goods and they want these to apply on lightweight fabrics. Sellers in most instances refuse to trade on this basis and have booked business anyway. Reductions will probably be made next season but most sellers say the present season price basis has been made and cannot be changed.

There is more activity in dress goods but the expansion in sales is not comparable to that in men's wear. Volume business in these fabrics is close at hand. Stocks are small and spring lines have been sampled extensively. When buyers recognize this, business will spurt.

Worsted Knitting Yarns Lower

Prices Reduced Have Been Two to Five Cents

SUBSTANTIAL reductions have been made in English spun knitting counts. Leading spinners are quoting on the basis of 92½c. for 2-20s, 50s, which is a reduction of 7½c. for several and 5c. for others. It is the most drastic reduction that has been made at one time for many months, and brings these counts down to a lower price basis than has been seen for a decade.

Larger spinners became tired of seeing their competitors booking the small volume of business that has been passing at prices 2½c. lower than they have been quoting. To better their own position they have taken this step and mean to meet all competition as it is felt that prices are close to a cost basis.

If a spinner can buy wool or top at current market levels he can come out with several cents profit; but most are not so fortunate and have higher priced wool which means that the new prices represent barely cost to most spinners. Unless wool goes lower they will hold for some time and this will give manufacturers confidence to go ahead with spring orders.

The most surprising thing has been the reduction of 5c. in French spun zephyr yarns used by knitters. These qualities have been the most active of the entire list and it was felt spinners would hold them at their former level. Instead they have announced reductions of 5c. in such counts as 2-20s and 2-40s, 64s grade.

The new level for 2-40s, 64s, is $1.45. These yarns are the largest sellers in the knitting list and the trend is strong in that direction. More knitters are using fine grades instead of quarter and three-eighths, producing better garments than a year ago at unchanged prices.

New business in weaving counts has not been large but orders for small lots are more numerous. An encouraging feature is larger and more active specifications on old contracts, coming especially from men's wear mills.

Raw Silk Stronger

Good Tone, Good Buying Are Features of Week

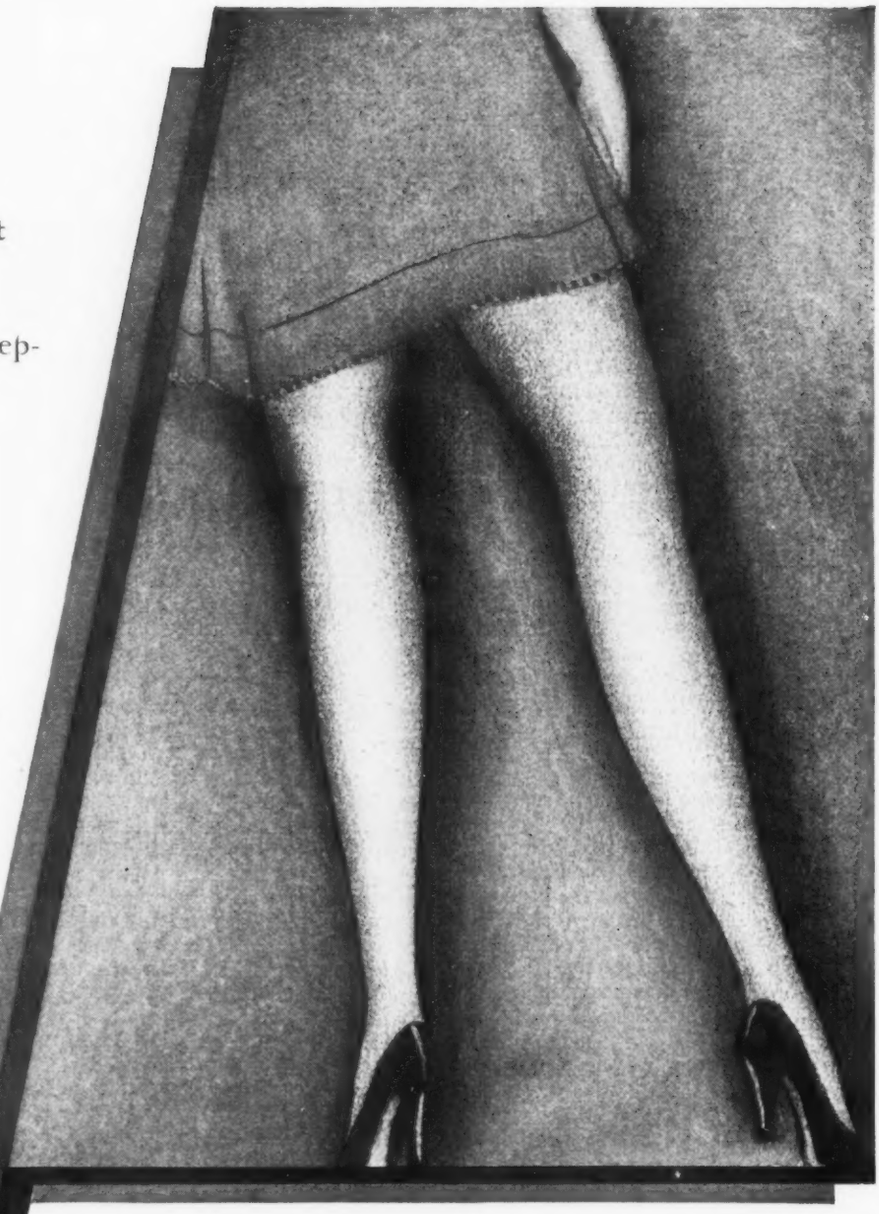
THOSE 800 silk importers, weavers, and others who at moment of going to press were gathering in the Astor Hotel, New York, for the trade's star event of the year—the annual dinner of the Silk Association—should have enjoyed that event to the maximum. If they did not, it was not the fault of market conditions. Raw silk ushered in the event, by firming up further, and even gained a couple of points. Raw silk has been consistently moving forward now for two months; indeed, at the moment, it is the most happily situated of all textile fibers. While silk is far from normal, decided gains have been made, and the indications are the market will continue to gain for at least four weeks more. The heavy demand by mills in December cleaned out what little stocks remained with importers, and now broad-silk weavers have difficulty in getting spot shipment of desired sizes. Importers are unable to meet spot call for 20/22s, and they are not disposed to increase their Japanese purchases.

Offerings Scarcer in Japan

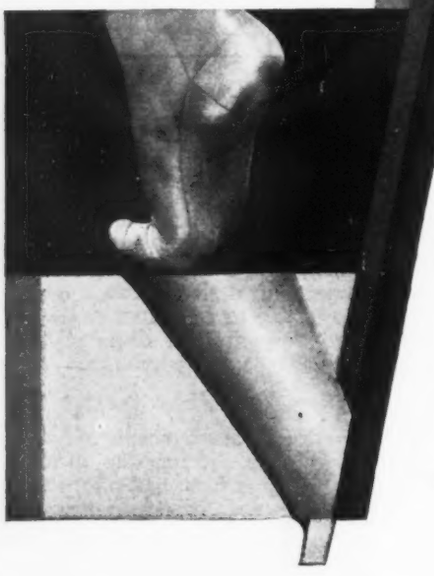
There were few developments of importance in Japan, during the week. Yokohama tone was firm, and offerings of silk were scarce. American manufacturers increased their commitments for February and March, which served

A STOCKING without a seam!... an accessory in keeping with the most studied smartness.

Flattering, *fitted* ankle . . . smooth foot and Gussetoe . . . all shaped in the knitting, achieved



The "Gussetoe"... the smooth, fitted foot... with no seam or ridge.



No seam to twist or mar the sheer.

without a seam . . . on the new Model "K" machine.

These lovely stockings are chic's own accent!

ESTABLISHED 1865

SCOTT & WILLIAMS

INCORPORATED

366 Broadway, New York, N.Y.

to tighten prices here. The New York importers are satisfied with the situation and the prospects. Stocks in mills are low, and February should be marked by steady buying. A recession— perhaps even a real decline—is on the cards for March or April; American demand will fall off at that time, and, if the Japanese start feeding their surplus into market, there will be more silk available than demand can assimilate. However, factors agree that a decline, if it comes, will hold above last summer's levels.

Sales to broadsilk mills eased slightly Wednesday, due to the execptionally stiff price situation; a certain amount of business was scared away, but on the whole turnover was active. Silk now is virtually a $3 proposition, and manufacturers are gradually becoming reconciled to the idea that it will hold that level.

◆Price Rise Slows Thrown Silk Sales

CURRENT firming of raw silk prices has been a bit too drastic to be readily assimilated by purchasers of thrown yarn, and as a result throwsters report a quiet week. Demand was active for several days last week, and broadsilk mills were clearly disposed to cover for the first quarter; however, they are not placing future business at present and even are limiting their spot orders, due to the sharp rise in prices. Throwsters are confident and regard the outlook as encouraging. There is little likelihood of any real call for hosiery trams before late February; these knitters have moderate stocks of yarn on hand. Broadsilk weavers on the other hand, are a promising prospect for consumption of thrown yarn at this time, as the fabric sales outlook is good and mills have little yarn on hand.

Spinners continue active, with prices unchanged. Confidence in shantung fabrics is spurring production and some weavers are buying freely; considerable business for mid-spring delivery has been placed this week. Shantung fabric production is still moderate so far as larger mills are concerned, but spinners expect these firms to place substantial orders early in February.

◆Broadsilk Prices Show Firming Trend

A FIRMING trend in the prices of spring broadsilks is noticeable this week, and manufacturers are showing considerable resistance when it comes to making concessions. The market is still far from strong, but the outlook is encouraging. Stocks in mills are moderate, and spring buying has begun; the past few days brought some good-sized business, and plenty of inquiries. There was a marked increase in activity of retail piece goods buyers in New York.

Actual orders for fabrics are rising slowly and the weavers look for a substantial jump the second half of the month. Printed flat crepes are still the leading line, and the preference is for tri-color effects, usually novel shades; the multi-color offerings are being passed over in favor of more conservative designs, it is noticed.

Cutters buy lightly all along the line. Shantungs gain slowly, but the bulk of the shantung business probably will not develop for another three weeks, at least. Chiffons are enjoying a fair call.

The tendency toward steadier prices is important, as suggesting a strong February market; but it would not do to bank on this. Numerous leading broadsilk firms have noted a lessening of "price" buying, and they themselves are in a good position to hold steady. Stocks are moderate, and production is going ahead only at normal pace. In some cases, printed flat crepe prices have advanced a few cents since last week. Viewed generally, broadsilks are in a more promising position.

Rayon Cut Now General

Trade Follows Viscose Lead—Market Quiet

DAILY announcements by producers of their new price lists, following the lead taken ten days ago by Viscose Co., has precipitated a mild state of flux in the rayon market. Knitters and weavers refuse to place more than immediate business until they have had a chance to study the new prices as a whole. There is a steady inflow of yarn orders, as low stocks in mills compel manufacturers to buy for spring production; but most contracts are small, and it will take the trade a week or two to get adjusted to the new scale. At present writing, there are indications that some more producing firms will join the ranks of those companies that have stopped issuing price lists.

Further Under-Selling Seen

Each succeeding cut in rayon prices appears to aggravate rather than ameliorate the situation as regards competition, and it is conceivable that the latest reduction may precipitate further underselling. However, the lowering scale now approaches actual cost of production for some firms and this should serve as a brake. Rayon price lists have been more honored in breach than in observance, during recent months, as actual trading has to a great extent, ignored them. The larger firms now express the oft-repeated hope that this new cut will be a move toward stability. Sales during the next two months will tell the tale. At present, the outlook is good. Industries which consume rayon are growing more confident, and indeed, they would be buying ahead right now, if the price cut had not created a temporary uncertainty. The new levels have changed the picture for rayon-consuming industries in several respects; they bring rayon broadgoods into closer competition with cotton, and also raise the hope of the rayon underwear knitters that they may get some of the business now going to cotton underwear producers. The rayon half-hose outlook is promising; market reports indicate that mills have only moderate stocks on hand, and, with the normal increase in output for spring, these mills should be buying synthetic yarn quite actively next month. Half-hose knitters are not overconfident, but they are encouraged by the better feeling noted among jobbers and retailers. This group generally regards the industrial depression as on the wane and expects spring to mark a slow and fairly steady rise in sales.

Knitters Grow Confident

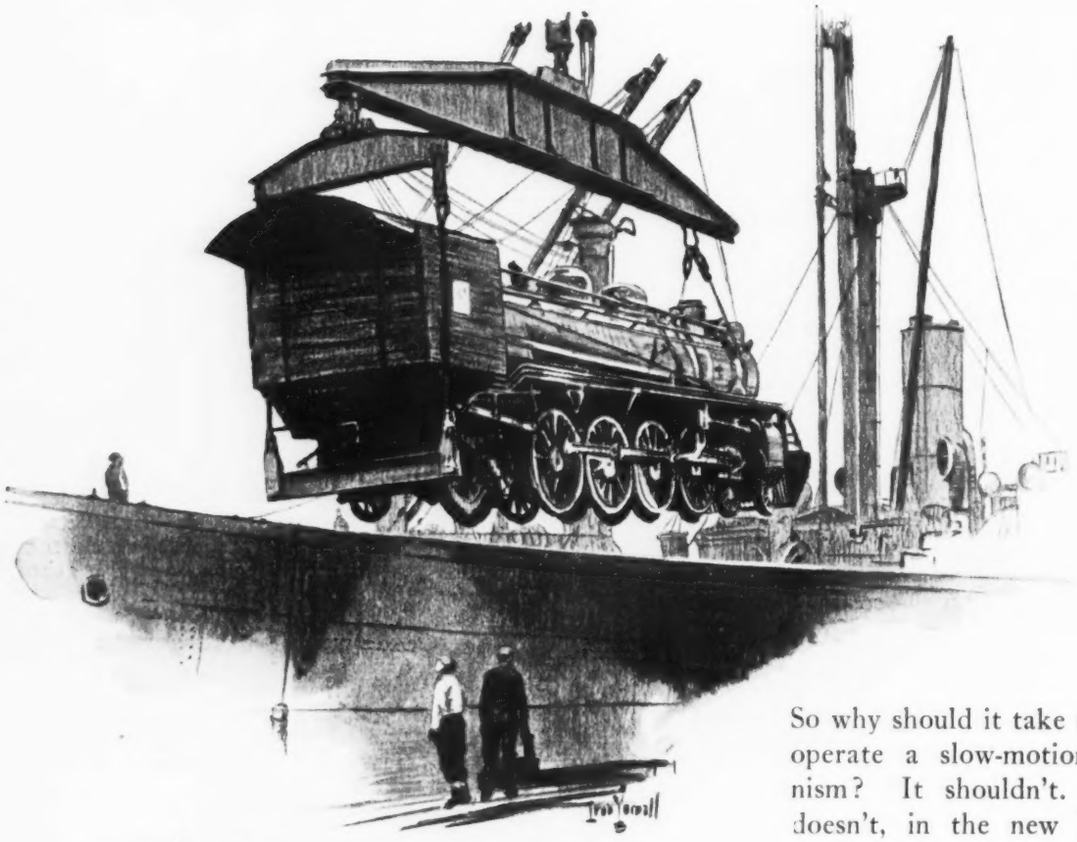
Sales Improve Slowly And Tone Is Better

BUYERS begin slowly to show interest in spring lines of knit goods and though sales have not picked up perceptibly, there is a firmer undertone. Hosiery mill representatives look for a sharp upturn in activity during the second half of the month, and this appears to be more than hollow optimism. Retailers and jobbers visiting the hosiery firms on Worth Street this week, talked encouragingly of the spring prospects. These distributors have virtually no stocks on hand. Their optimism has not as yet been converted into man-sized orders, but they indicate that they will do some worth-while buying shortly. Current full-fashioned hosiery orders are chiefly for 42 gauge, seven and ten-thread numbers. All these contracts are small and for spot shipment.

Full-Fashioned Outlook

Spring outlook for full-fashioned has improved slightly as curtailment by the leading mills has reduced surplus; however, many small mills failed to curtail,

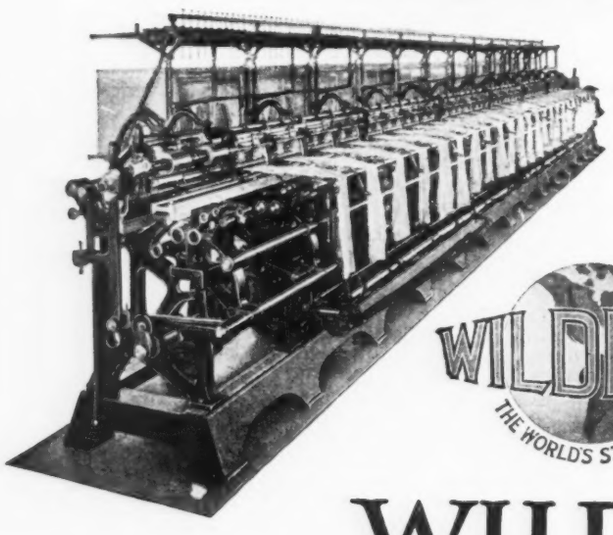
It *doesn't take* muscle *to lift a locomotive*



So why should it take muscle to operate a slow-motion mechanism? It shouldn't. And it doesn't, in the new Wildman Full-Fashioned Hosiery Machine. A child could operate this new mechanism.

This is one of many interesting improvements incorporated in the new Wildman Machine.

Write for further information.



WILDMAN
THE WORLD'S STANDARD

WILDMAN MFG. CO.
Full-Fashioned Division
Norristown, Pa.

WILDMAN
FULL-FASHIONED HOSIERY MACHINE

and there is still an unhealthy amount of overproducing. Other hosiery lines are in a moderately good position; stocks in all divisions are light. This argues for a fairly firm February. Women's seamless hosiery is in demand, as are the men's half-hose, men's golf hose and children's lines. Children's spring goods for spring are backward, but knitters look for an early improvement.

The date of opening of fall heavyweight underwear lines is still uncertain; there is talk of announcing new prices early in February, though some mills may anticipate the market by making known their rates next week. Indications are that prices will be about 10% below prevailing figures, the cut being made possible by lower prices of cotton yarn. Spot business in heavies is still good, and mills are averse to announcing new season prices, until the current demand shows definite signs of waning. The principal producers guarantee their customers who buy ahead, against a price reduction. Spring lightweight underwear has improved; jobbers placed orders freely this week, and, while prices were not too firm, mill representatives are holding fairly close to recent revisions. It is estimated that so far jobbers and retailers have bought only one-fifth of their actual requirements in lightweight cottons and rayons, for spring. Rayon underwear has been hesitant as the trade has not yet adjusted itself to the yarn price cut. Market undertone has become somewhat stronger.

In the outerwear field, interest centers on the fall sweater openings which are expected to start next week. Prices of new lines are a closely guarded secret, but a moderate cut is looked for. Buyers show increasing interest in spring sweaters. Bathing-suit sales are steady, though lighter than last week.

Optimism in Share Market

Low Prices of Some Textiles, Such as American Woolen, Draw Attention

OPTIMISTIC analysis of the position of the American Woolen Co. is made in a letter sent by Carreau & Snedeker, members of N. Y. Stock Exchange, to stockholders of the American recommending the preferred as an attractive speculation at current market of about 30. After commenting encouragingly on the company's newly installed officers, the letter says in part:

"As of June 30, 1930, after deducting all senior liabilities, the corporation possessed per preferred share, the equivalent of

$26.00 in cash
21.00 in receivables and acceptances
40.00 in inventories
107.00 in fixed assets (less depreciation)
194.00 in total surplus assets.

"Under normal business conditions, the company undoubtedly requires a large amount of working capital. In the inconceivable event of complete liquidation and the equally inconceivable dumping of finished and unfinished stocks on the market, the value of such stocks might be materially lowered. But for a going corporation, successfully engaged in an essential industry for nearly a third of a century, whose financial policy has in recent years been increasingly conservative, such a spread between equity in current assets and market value of shares seems little short of preposterous.

"The American Woolen Co., far from retrogressing during the long-extended deflation its industry has suffered, has actually improved its position. Total assets surplus to the preferred shares have, it is true, declined from approximately $105,600,000 in 1926 to about $97,140,000 as of June 30, last; but, in the same period, current indebtedness was reduced from more than $16,000,000 to less than $2,200,000; a considerable proportion of excess plant capacity was sold, leased or otherwise disposed of; progress has been made in the concentration of manufacturing operations and the replacement of hand-operations with automatic machinery.

Sees Progress in the Industry

"Aside from the improvement effected within the American Woolen Co., the industry itself has evidently made important progress. An extended curtailment of manufacturing operations has led to the reduction of surplus stocks to what are regarded as almost minimum requirements, with the result that the industry has entered a period of price-stabilization such as it has not enjoyed for years. Since year-end inventory adjustments have been regarded as the controlling factor in the losses reported by all the leading companies—American Woolen included—in recent years, the importance of this development needs no elaboration."

American Woolen preferred and common both have risen since the turn of the year. Low prices on these and other textile stocks seem to be drawing more attention than usual from traders and investors.

Eureka-Springstein Merger?

Eureka Cotton Mill, Chester, S. C., will have a meeting of its stockholders in Lancaster, S. C., Feb. 10, to consider a resolution to increase the capital stock of this company to an amount not exceeding $850,000, according to a recent notice issued by H. S. Adams, a secretary and treasurer. The meeting is also to consider an agreement to consolidate the Springstein Mills with the Eureka Cotton Mill, into a single corporation, to be known as the Eureka Cotton Mills. Col. Leroy Springs, of Lancaster, is president of both mills.

Westcott Joins Trojan-National

A consolidation of Westcott Hosiery Mills, Walton, Ga., with the previously merged Trojan Hosiery Mills, Indianapolis, and National Silk Hosiery Mills, is announced. It is stated that in the future the products of the three mills will be sold through Trojan's selling organization.

Trojan will continue to specialize in 42- and 45-gauge "Flat Tone" and "Grenine" unbranded products. National will continue to specialize in 48-gauge three-thread "Grenine," while Westcott will produce "Fabrimode" dull stockings as in the past.

Fred Westcott, former sales manager of the Westcott company, has been made assistant vice-president of Trojan, and a number of the men in that firm's sales force has joined Trojan's. The consolidation became effective at a meeting of the two companies in Indianapolis.

Russell Report for Nov. 30

Russell Mfg. Co., Middletown, Conn., Nov. 30, 1930, reports a surplus of $2,937,518 as compared with $3,505,087, Nov. 30, 1929. Capital is unchanged at $2,000,000. Equity share value is $241.87 as compared with $275.25 last year. Current assets, respectively, $1,-361,762 and $1,752,151. Inventories were written down $1,971,584 in 1930 and $3,057,422 in 1929. Current liabilities $813,524 in 1930 and $1,744,729 in 1929.

Sanford Earnings Decline

A comparison of the Nov. 30, 1930 balance sheet of Sanford (Me.) Mills with that of a year ago indicates that the company earned approximately $88,251 during the fiscal year. Indicated profit in 1929 was $926,284 and in 1928, $1,257,989. During the 1930 fiscal year surplus declined $679,422 to $13,-094,423 and dividends paid totaled approximately $767,673. Depreciation of raw material and merchandise values, necessitating inventory write-off of $1,609,173, and curtailed demand from automobile and furniture manufacturers were major factors in bringing about decreased earnings.

The company is in strong financial position, working capital on Nov. 30 last amounting to $7,112,441. Current assets were 13.7 times current liabilities, as compared with a ratio of 7.9 to 1 at the end of 1929.

Boston Stock Auctions

The following sales of textile shares were made at Wednesday's auctions:

Shrs.	Mill	Par	Price	Change
55	Associated Textile	...	35–36¼	....
20	Harmony, pfd.	100	22	—¼
5	Esmond, pfd.	100	98	+2½
35	Naumkeag	100	80¼–84	....
115	Total			

QUOTATIONS

at close of business, Jan. 14, 1930
Prices cover average qualities unless otherwise stated

Cotton Goods

	Jan. 14	Jan. 7	Jan. 15 1930
PRINT CLOTHS			
27 -in., 64x60, 7.60	3¾–3¾c.	3¾–3¾c.	4¾–4¾c.
38½-in., 64x60, 5.35	5¼c.	5¼c.	6½– 7c.
39 -in., 68x72, 4.75	6c.	6c.	7½– 8c.
39 -in., 72x76, 4.25	6¼c.	6¼c.	8½c.
39 -in., 80x80, 4.00	7⅛– 8c.	7¼– 8c.	9¼–9½c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	6c.	6c.	8c.
36-in., 48x48, 3.00	6¼c.	6¼c.	9½c.
37-in., 48x48, 4.00	5½–5¾c.	5½–5¾c.	7¼c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70	6c.	6c.	8–8½c.
36½-in., 64x60, 5.75	5c.	5c.	6¼–7 c.
MISCELLANEOUS			
Drills, 37-in., 3 yd	7¼c.	7¼c.	10½c.
Denims, 2.20	11½c.	11½c.	15c.
Tickings, 8 oz	16 c.	16 c.	19½c.
Standard prints	7½c.	7½c.	9½c.
Eastern staple ginghams, 27-in.	8 c.	8 c.	10 c.

Cotton Waste

Peeler comber	8¼— 8¾
Peeler strips	7½— 8
Sak. comber	7½— 8
Choice willowed fly	3¾— 4¼
Choice willowed picker	3 — 4
Sak. strips	10½—11
Linters (mill run)	2½— 3½
White spooler (single)	7 — 7¾

Cotton Yarn

CARDED (Average Quality)

Double Carded 2c.—4c. higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$.18 – .18½	22s	$0.22
10s	– .18½	24s	.22½– .23
12s	– .19	26s	.23½– .24
16s	.19½– .20	30s	.25 – .25½
20s	.20 – .20½	40s ex. qual.	– .36

TWO-PLY SKEINS AND TUBES

8s-2	$0.18½	26s-2	$0.24
10s-2	.18½– .19	30s-2	– .25½
12s-2	– .19	36s-2	– .31½
14s-2	– .20	40s-2	.32½– .33
162-s	– .20	40s-hi.brk.	– .37
20s-2	– .20½	50s-2	– .41
24s-2	.23 – .23½	60s-2	– .51

SINGLE WARPS

10s	$0.18½	24s	$0.23
12s	– .19	26s	– .24
14s	.19 – .19½	30s	– .26
16s	.19½– .20	40s.ex.qual	– .37
20s	.20½– .21		

TWO-PLY WARPS

8s-2	$0.18½	24s-2	$0.23½
10s-2	– .19	26s-2	– .24½
12s-2	.19½– .20	30s-2	.25½– .26
14s-2	.20 – .20½	40s-2 ordin.	– .34
16s-2	– .20	50s-2	– .42
20s-2	– .20½	60s-2	– .52

8s-3 and 4-ply skeins and tubes; tinged, 17; white, 18; waste, 16

HOSIERY CONES (Frame Spun)

8s	$0.18½	22s	$0.22
10s	.18½– .19	24s	– .22½
12s	– .19	26s	– .23
14s	– .19½	30s tying	– .25
16s	– .20	30s reg	– .26
18s	– .20½	30s ex.qual.	.28 – .28½
20s	– .21	40s	– .34

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.34 – .35	60s-2	$0.54 – .55
30s-2	.38 – .39	70s-2	.64 – .65
36s-2	.40 – .41	80s-2	.74 – .76
40s-2	.42 – .43	90s-2	.90 – .93
50s-2	.47 – .48	100s-2	1.10 –1.15

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.35	60s-2	$0.55
30s-2	– .40	70s-2	– .65
36s-2	– .41	80s-2	.77 – .80
40s-2	– .43	90s-2	.92 – .95
50s-2	– .48	100s-2	1.12 –1.17

SINGLES

12s	$0.27 – .27½	30s	$0.37 – .37½
14s	.27½– .28	38s	.39½– .40
16s	.28 – .28½	40s	.40½– .41
18s	.28½– .29	50s	.46 – .47
20s	.29½– .30	60s	.53 – .54
24s	.32 – .32½	70s	– .63
28s	.35½– .36	80s	– .73

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0.50 – .51	90s-2	$1.29 –1.32
30s-2	.52 – .53	100s-2	1.59 –1.61
36s-2	.55 – .56	120s-2	1.98 –2.05
40s-2	.58 – .59	30s	.63 – .65
45s-2	.60 – .61	40s	.68 – .70
50s-2	.62 – .64	50s	.75 – .77
60s-2	.70 – .72	60s	.83 – .85
70s-2	.82 – .84	70s	.95 – .97
80s-2	.94 – .98	80s	1.17 –1.19

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed Jan. 8	For Week High	For Week Low	Closed Jan. 14	Net Chge.
January	10.30	10.32	9.99	10.05	—.25
February	10.13	10.16	10.04	10.06	—.07
March	10.21	10.41	10.06	10.15	—.06
April	10.34	10.36	10.25	10.27	—.07
May	10.47	10.69	10.32	10.39	—.08
June	10.58	10.59	10.47	10.49	—.09
July	10.70	10.85	10.51	10.59	—.11
August	10.75	10.75	10.62	10.70	—.05
September	10.75	10.75	10.62	10.70	—.05
October	10.78	10.93	10.62	10.74	—.04
November	10.87	10.87	10.76	10.81	—.06
December	10.96	11.10	10.76	10.88	—.08

SPOT FLUCTUATIONS FOR WEEK

(Middling)

	New York	New Orleans	Liverpool
Friday, Jan. 9	10.20	9.80	5.40
Saturday, Jan. 10	10.15	9.80	5.41
Monday, Jan. 12	10.00	9.68	5.39
Tuesday, Jan. 13	10.05	9.68	5.32
Wednesday, Jan. 14	10.05	9.73	5.39
Thursday, Jan. 15	10.10	9.73	5.37

FOREIGN COTTONS

Egyptian Cotton

Alexandria Exchange, Jan. 6		Change
January Sak	14.12	+0.39
February uppers	10.64	+0.08

Jan.-Feb. Shipment c. i. f. Boston.
(Tariff not included)

Fully good fair Sak	16.20
Fully good fair to good Uppers	13.35

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	19½
Peruvian Pima No. 1	19
Peruvian Moderate Rough	16
Peruvian Full Rough	21
China Tientsin No. 1	9½
India Rough	7 to 10
India Smooth	7 to 10

(By Gerald G. Loeb, New York.)

BASIS MIDDLING

	Saturday, Jan. 10	Saturday, Jan. 3
10 markets average	9.44	9.47
Memphis	9.00	9.05

PREMIUM STAPLES

First Sales from Factors Tables at Memphis

Grade Strict Middling	Prices Nominal
1⅛-in.	11.75—12.00c.
1 3/16-in.	13.25—13.50c.
1¼-in.	17.90—18.25c.

CURRENT SALES

	For Week	Prev. Week	Week Before
Memphis total	14,460	7,962	7,002
F.o.b. included in total	12,117	6,718	6,457
10 markets	64,404	49,236	50,653

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	7,513	34,095	35,939
Gross receipts	28,844	68,422	66,839
Total since Aug. 1, net	537,988	744,976	603,655
Shipments	31,943	52,145	58,187
Total since Aug. 1	708,683	1,045,458	932,961
Total stock	390,022	435,138	289,212
Decrease for week	2,099	*16,277	*8,652
Unsold stock in hands of Memphis factors	77,973	61,657	.....
Increase for week	1,937	**1,564	.....

*Increase. **Decrease.

AVERAGE PRICE JAN.-FEB. SHIPMENT HARD WESTERN COTTON

F. o. b. New England

	Middling	St. Middling
1 1/16 in.	12½–12¾c.	12½–12¾c.
1⅛ in.	12¾–13 c.	13½–13¾c.
1 3/16 in.	14½–15 c.	15½–16 c.
1¼ in.	19 –21c.	20 –22c.

Basis on New York, March 10.15c.

SPOT FLUCTUATIONS AND STOCKS

Markets	Middling Jan. 7	Middling Jan. 14	Sales	Stocks This Week	Stocks Last Year
Galveston	10.00	9.90	3,449	652,253	467,155
New Orleans	9.80	9.73	6,306	765,576	520,989
Mobile	9.15	9.10	137	186,377	47,600
Savannah	9.53	9.46	1,374	317,416	79,006
Norfolk	9.75	9.69	249	95,041	74,082
New York	10.25	10.05	500	229,007	95,723
Augusta	9.31	9.31	1,074	121,721	108,416
Memphis	9.00	8.90	14,907	390,339	439,438
St. Louis	8.75	8.75	.....	14,465	14,068
Houston	9.95	9.80	14,485	1,476,248	1,123,251
Dallas	9.45	9.35	16,459	29,002	13,651

DIFFERENCES ON AND OFF MIDDLING

WHITE GRADES

	Dallas	Memphis	Montgomery	Augusta	Average
M.F	.75†	1.00†	.85†	.75†	0.87†
S.G.M	.60†	.75†	.75†	.63†	.70†
G.M	.50†	.50†	.60†	.50†	.51†
S.M	.35†	.25†	.35†	.25†	.30†
S.L.M	.60*	.75*	.65*	.50*	.64*
L.M	1.35*	1.50*	1.50*	2.25*	1.43*
S.G.O.**	2.25*	1.75*	2.50*	3.50*	2.28*
G.O	3.25*	2.00*	3.50*	4.50*	3.06*

YELLOW TINGED

G.M	0.50*	0.75*	0.50*	0.50*	0.58*
S.M	1.00*	1.25*	1.00*	1.00*	1.03*
M.**	1.75*	1.50*	1.50*	1.50*	1.58*
S.L.M	2.50*	1.75*	2.25*	2.25*	2.20*
L.M.**	3.50*	2.00*	3.00*	3.00*	2.97*

YELLOW STAINED

G.M	1.50*	1.75*	1.50*	1.50*	1.55*
S.M.**	2.25*	2.00*	2.50*	2.50*	2.30*
M.**	3.00*	2.00*	3.50*	3.50*	3.10*

BLUE STAINED

G.M.**	1.75*	1.50*	1.75*	1.75*	1.63*
S.M.**	2.25*	1.75*	2.75*	2.75*	2.33*
M.**	3.00*	2.25*	3.75*	3.75*	3.10*

**Grades not deliverable on contract. †On Middling *Off Middling.

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA
(IN GREASE)

Fine delne..	$0.29 –$0.30	¾ blood.....	$0.27 –$0.28
Fine clthg ..	.25 – .26	½ blood.....	.26 – .27
¼ blood.....	.28 – .29		

TEXAS AND CALIFORNIA
(CLEAN BASIS)

Texas, 12 months	$0.65 –$0.68
California, Northern	.58 – .60

PULLED—EASTERN (CLEAN BASIS)

A.A.....	$0.68 –$0.70	B-Super...	$0.43 –$0.48
A-Super....	.55 – .58	C-Super...	.41 – .43

MONTANA, IDAHO AND WYOMING
(CLEAN BASIS)

Staple fine	$0.68 –$0.72
Staple ¾ bld.	.62 – .67
Fine and fine medium	.63 – .65
¾ blood	.55 – .58
¼ blood	.51 – .53

MOHAIR—DOMESTIC

Best Carding	$0.30 –$0.33
Best combing	.45 – .48

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.18 –$0.20
Cape firsts	.20 – .22

FOREIGN CLOTHING AND COMBING
(CLEAN BASIS IN BOND)

Australia:	
70s	$0.60 –$0.63
64s	.42 – .45
58s-60s	.38 – .40

(IN GREASE)

Montevideo:	
58s-60s	$0.18 –$0.19
56s	.17 – .18
50s	.16 – .17
Buenos Aires:	
4s, 40-44s	$0.11 –$0.12
5s, 36-40s	.09 – .10

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo	$0.20 –$0.22
China: Combing No. 1	.11 – .12
China Filling Fleece	.10 – .11
Szechuen ass't	.11 – .12
Cordova	.11 – .12
Scotch black face	.13 – .14
East India: Kandahar	.18 – .19
Vican'r	.22 – .24
Joria	.21 – .22

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.85 –0.87½
2-24s 40s	.95 – .97½
2-26s 44s	1.02½–1.05
2-28s 46s	1.07½–1.10
2-30s 48s	1.12½–1.15
2-32s 50s	1.12½–1.15

(Single yarns 5c. less than above)

2-36s, 58s	$1.30 –1.32½
2-40s, 60s	1.37½–1.42½
2-40s, 64s	1.42½–1.45
2-50s, 66s	1.60 –1.65
2-60s, 70s	1.95 –1.97½

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.80 –0.82½
2-20s, 48s in oil	.87½– .90
2-20s, 50s in oil	– .92½
2-20s, 56s in oil	1.02 –1.05
2-20s, 60s in oil	1.17½–1.20
2-20s, 64s in oil	–1.27½
1-15s, 46s dyed	1.05 –1.07½
1-15s, 48s dyed	1.07½–1.10
1-15s, 50s dyed	1.10 –1.12½

(Oil yarns 17½c. less)

FRENCH SYSTEM

1-20s, 58s	$1.15 –1.17½
1-20s, 60s	1.20 –1.22½
1-18s, 64s, dyed	1.42½–1.45
1-26s, 64s	1.22½–1.25
1-30s, 60s, Warp	1.30 –1.32½
1-30s, 64s, Warp	1.32½–1.35
2-30s, 64s, Fancy mixes	–1.65
2-40s, 64s, Zephyrs	1.45 –1.47½
1-50s, 66s	1.60 –1.62½
2-50s, 66s	1.75 –1.77½
1-60s, 70s	1.95 –1.97½
2-60s, 70s	2.05 –2.10

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$1.02½–1.05
1-402, 50-50-60s on cops	1.15 –1.17½
1-40s, 50-50-64s on cops	1.17½–1.20
1-40s, 50-50-64s Australian cops	1.25 –1.30

Underwear mixes, 3c. additional.
Solid color, 35c. additional.

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Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.93–$0.95		
Half-blood (60-62s)	.85– .87		
High ¾ blood (58s)	.80– .82		
Aver. ¾ blood (56s)	.75– .78		
Low ¾ blood	.70– .73		
High ½ blood (50s)	.65– .68		
46s S. A. and N. Z.	.60– .63		
44s S. A. and N. Z.	.58– .60		
40s S. A. and N. Z.	.56– .58		

TOPS—BRADFORD, ENG. (JAN. 8)

Fine (70s)	26 d	¾ bld. (56s)	15 d
Fine (64s)	22½d	½ bld. (50s)	12½d
½ bld. (60s)	20 d	Cross-bred (46s)	10½d
¾ bld. low (58s)	18 d		

NOILS—BOSTON

Fine	$0.45–$0.48	High ¼ bld.	$0.33–$0.35
Half-bld.	.41– .43	Low noils	.28– .30
Aver. ¾ bld.	.35– .38	Medium colored	.28– .30
Fine colored.	.35– .38		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.70 –$0.72
Lap, fine colored	.51 – .53
Hard ends, fine white	.50 – .53
Hard ends, ¼ blood white	.33 – .35
Hard ends, fine colored	.23 – .25
Hard ends, medium colored	.18 – .20
Card, fine white	.25 – .28
Burr, fine Carbonizing	.30 – .33

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.04½–$0.05½
Merinos, Fine Dark	.04 – .04½
Merinos, Fine Light	.11 – .12
Serges, Blue	.06 – .06½
Serges, Black	.06 – .06½
Serges, Red	.08 – .09
Knit, White	.21 – .22
Knit, red	.10½– .11½
Knit, Light Hoods	.11½– .12½
Worsted, Light	.05½– .06
Worsted, Blue	.07 – .07½
Worsted, Black	.07 – .07½

Silk Yarns

THROWN SILK (60 day basis)

	Nominal
Japan organzine, 2 thd. spec. gd. XX. sk. 85%	$4.40
Japan organzine, 2 thd. sp. crack. sk. 81%	3.90
Japan crepe, 3 thd. gd. XX bob. 83%	4.10
Japan crepe, 3 thd. sp. crack. bob. 81%	4.00
Japan crepe, 4 thd. crack bobbins, 78%	3.70
Japan grenadine, 4 thd. sp. grand singles, 87%	6.10
Japan grenadine 4 thd. 85%	5.85
Japan grenadine 3 thd. 90%	7.10
Canton crepe, 3 and 4 thd. ns. 14/16 on bobbins	2.90
Hosiery tram, 3 thd. Japan 90%	5.20
Hosiery tram, 5 thd. Japan, 85%	4.25
Hosiery tram, crack XX 78%	3.40

SPUN SILK YARNS (Terms: net 30)

40/2	$3.15	60/2	$3.35
50/2	3.25	62/1	2.35

Raw Silk

(60 day basis)
Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 86/88%	$3.85	$3.15	$3.15
Special Grand, 85%	3.40	3.00	3.00
Grand XX, 83%	3.20	2.92	2.92
Special Crack, 81%	3.00	2.85	2.85
Crack XX, 78%	2.92	2.80	2.80
Extra Extra, 73%	2.80	2.70	2.70
Best Extra, 68%	2.75	2.60	2.60

Canton filature, new style, 14/16	$1.82
Canton filature, new style, 20/22	1.65
Tussah filature, 8 cocoon	1.20

NATIONAL RAW SILK EXCHANGE

	Close Jan. 7	For the Week High	For the Week Low	Close Jan. 13	Net Chge.
January	2.59	2.65	2.44	2.60	+.01
February	2.60	2.66	2.50	2.62	+.02
March	2.60	2.64	2.49	2.61	+.01
April	2.59	2.64	2.48	2.61	+.02
May	2.59	2.65	2.48	2.60	+.01
June	2.56	2.64	2.49	2.60	+.04
July	2.56	2.65	2.49	2.60	+.04
August	2.57	2.64	2.49	2.60	+.03

Jan. 7 to Jan. 13—Total contracts, 758. Total number of bales, 7,580. Total approximate value $22,133.60

Domestic Rayon

VISCOSE PROCESS
Prices Nominal

Denier	Filament	First	Second
50	14	$2.15	$1.95
75	18–30	1.35	1.25
100	18–40	1.10	1.00
125	36–50	1.00	.90
150	24–40	.75	.72
150	60	.85	.82
150	75–90	.85	.82
170	24–27	.75	.72
170	60	.85	.82
200	30	.75	.72
200	35–42	.75	.72
200	75–80	....	....
300	42–62	.63	.60
450	54–60	.63	.60
600	72–96	.63	.60
900	100–144	.63	.60

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.35	$1.25	150	$0.75	$0.72
100	1.05	.95	175	.75	.72
125	.95	.85			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	65	45	$2.00
25	24	2.85	80	60	1.70
30	24	2.60	100	75	1.35
40	30	2.40	120	90	1.22
52	30	2.20	150	112	1.10
			180	135	.97

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.25 2.75	120	$1.90
55	2.05–2.55	140	1.30
65	2.45	150	1.40–1.85
75	1.80–2.70	200	1.55
100	1.65–2.45	300	1.50

Rayon Waste

Prices Nominal

Open bleached waste	–$0.15
Open unbleached waste	.11– .13
Bleached thread waste (mfs.)	.11– .11½
Bleached thread waste (misc.)	.06– .08
Colored thread waste	...– .05
Colored clips	...– .05

CONVERTED RAYON WASTE

Bleached tops	$0.33–$0.36
Unbleached tops	.30– .33
Bleached noils	...– .12
Bleached garnetts	.14– .18
Unbleached garnetts	.15– .17
Colored garnetts	...– .13

Silk Waste

Kibizzo Kakai Grand XX	$0.54
Kibizzo Kakai Triple Extra	.48
Frison Grand Double	.52½
Pierced Cocoons	.53

If your mill can't make a profit with obsolete machines what will be your answer to the inevitable? Will you close your doors or modernize your equipment?

Let us show you how much less expensive the latter course will prove.

TEXTILE MACHINE WORKS

Reading, Pa.

The "READING"

Full-Fashioned Knitting Machine

Southern Mill Securities

(A. M. Law & Co., Spartanburg)

	Bid	Asked
Abbeville Cotton Mills	..	40
Anderson Cotton Mills	55	65
Arcade Cotton Mills	..	50
Arcadia Mills	..	200
Arcadia Mills, pfd	80	90
Arkwright Mills	..	45
Augusta Factory, Ga	..	20
Avondale Mills, Ala	500	800
Beaumont Mfg. Co	200	250
Beaumont Mfg. Co. 7% pfd	93	100
Belton Mills	..	20
Belton Mills, pfd	55	63
Bibb Mfg. Co	95	100
Brandon Corp., A	..	40
Brandon Corp., B	..	6
Brandon Corp., pfd	..	70
Calhoun Mills	..	85
Chadwick-Hoskins Co. (par, $25)	6	9
Chesnee Mills	..	40
Chiquola Mfg. Co	..	200
Chiquola Mfg. Co., pfd	80	85
Clifton Mfg. Co	88	92
Clinton Cotton Mills	..	220
Columbus Mfg. Co., Ga	55	60
Cowpens Mills	..	20
D.E. Converse Co	..	80
Dallas Mfg. Co., Ala	35	40
Darlington Mfg. Co	..	45
Drayton Mills	65	..
Dunean Mills	98	110
Dunean Mills, pfd	92	97
Eagle & Phoenix Mills, Ga	..	55
Easley Cotton Mills, pfd	..	30
Enterprise Mfg. Co., Ga	..	75
Fairforest Finishing Co., serial notes	95	100
Florence Mills	40	50
Florence Mills, Pfd	93	97
Gaffney Mfg. Co	..	15
Gainesville Cotton Mills, Ga	..	110
Glenwood Mills	80	90
Gluck Mills	45	60
Gossett Mills	..	45
Graniteville Mfg. Co	..	85
Greenwood Cotton Mills	500	..
Grendel Mills, pfd. (par, $50)	40	45
Hamrick Mills	..	90
Hartsville Cotton Mills	110	120
Hunter Mfg. & Com. Co., pfd	62	66
Industrial Cotton Mills Co., pfd	..	30
Inman Mills	90	100
Inman Mills, pfd	90	100
Judson Mills, A, pfd	80	90
Judson Mills, B, pfd	80	85
King, John P. Mfg. Co., Ga	..	80
Lancaster Cotton Mills	225	..
Laurens Cotton Mills	..	95
Limestone Cotton Mills	..	90
Lydia Cotton Mills, serial notes	..	95
Marion Mfg. Co., N. C	..	90
Marlboro Mills	..	11
Mills Mill, pfd	80	90
Mollohon Mfg. Co., pfd	90	100
Monarch Mills	..	83
Musgrove Cotton Mills	..	20
Newberry Cotton Mills	90	100
Ninety-six Mills	400	..
Norris Cotton Mills	..	30
Orr Cotton Mills	..	50
Orr Cotton Mills, pfd	60	65
Pacolet Mfg. Co	..	80
Pacolet Mfg. Co., pfd	..	75
Panola Cotton Mills, Class A, pfd. (par, $60)	45	50
Pickens Cotton Mills	100	110
Piedmont Mfg. Co	85	92
Piedmont Print Works (no par)	..	5
Piedmont Print Works, pfd	..	50
Poe, F. W. Mfg. Co	18	22
Riverside & Dan River Mills	9	10
Riverside & Dan River Mills, 6% pfd	59	65
Saxon Mills	..	50
Sibley Mfg. Co., Ga	50	60
Southern Bleachery	..	15
Southern Bleachery, pfd	..	70
Southern Bleachery, serial notes	90	100
Southern Franklin Process	18	22
Southern Franklin Process, pfd	95	100
Southern Worsted Corp., pfd	70	80
Spartan Mills	95	110
Spencer Corp., serial notes	95	100
Union-Buffalo Mills	..	30
Union-Buffalo Mills, 1st pfd	63	68
Union Buffalo Mills, 2nd pfd	..	35
Victor-Monaghan Co	50	54
Victor-Monaghan Co., pfd	100	110
Wallace Mfg. Co	..	90
Ware Shoals Mfg. Co	110	120
Woodside Cotton Mills Co	..	20
Woodside Cotton Mills, pfd	12	15
Yarns Corp. of America, gold bonds	95	100

New England Textile Stocks

Quotations at "Public Sale" are based on last sales at Boston Public Auctions and Boston Stock Exchange. Bid and Asked prices are latest quotations of dealers.

	Sale	Bid	Asked
Am. Mfg. Co	52	52	56
Amoskeag	8½	...	...
Arlington	16½	15	17
Associated Textile	36½	34	37
Bates	64	59	64
Berkshire, Associates, com	4	4½	6
Berkshire Associates, pfd	25	25	30
Bigelow-Sanford, com	27	...	...
Boott Mills	120½	...	108
Edwards	80½	59	63
Esmond, pfd	98	95	98
Farr Alpaca	70½	55	57
Hamilton Woolen	40	33	36
Hill	9	9	12
Indian Orchard	20½	20	25
Ludlow	117½	115	118
Merrimack, com	35	25	30
Nashua, com	10½	7	10
Nashua, pfd	66	27	..
Naumkeag	84	80	83
Newmarket	16½	14	18
Otis	43	30	32
Pacific	9½	...	...
Pepperell	80½	76	79
Plymouth Cordage	66	64	...
York	8½	6	8

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Textile Calendar

Southern Textile Association, Alabama-Mississippi-Louisiana Division, Regular Meeting, Montgomery, Ala., Jan. 30, 1931.

National Retail Dry Goods Association, 20th Annual Convention, Hotel Pennsylvania, New York, Feb. 2 to 6, 1931.

Boston Wool Trade Association, annual banquet, Copley-Plaza Hotel, Boston, Mass., Feb. 5, 1931.

The Textile Forum, N.A.C.M., warp preparation and weaving, Boston (Mass.) Chamber of Commerce, Feb. 10, 1931.

International Association of Garment Manufacturers, 24th Annual Convention and 18th Annual Textile and Machinery Exposition, Hotel Stevens, Chicago, March 3 to 5, 1931.

The Textile Forum, N.A.C.M., overseers of finishing, Boston (Mass.) Chamber of Commerce, March 10, 1931.

Wholesale Dry Goods Institute, Annual Meeting, Hotel Pennsylvania, New York, Jan. 20 and 21, 1931.

Wool Blanket Manufacturers Association, Quarterly Meeting, Hotel Pennsylvania, New York, Mar. 27, 1931.

Export Managers Club of New York, Annual Get-together Meeting, Hotel Pennsylvania, New York, Mar. 3, 1931.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 13 to 17, 1931.

Exposition of Chemical Industries, Grand Central Palace, New York, May 4 to 9, 1931.

American Cotton Manufacturers Association, Thirty-fifth Annual Convention, Hotel Traymore, Atlantic City, N. J., May 21 to 23, 1931.

Textiles on N. Y. Exchanges

The following shows the movements of the leading textile stocks listed on the New York Stock Exchange and Curb for the week ended Jan. 14:

	High	Low	Last Sale	Net Chge.
Adams Millis	22¼	22¼	22¼	—1⅛
*American Thread, pfd	3½	3½	3½	+ ⅛
American Woolen	11½	9	10½	+1⅜
American Woolen, pfd	32½	27½	31½	+4½
*Assoc. Rayon, pfd	43½	36½	41½	+7½
Belding-Hemingway	2½	2⅜	2½	— ⅛
Cannon Mills	20½	18	20½	+2½
Century Ribbon	3	3	3	+ ⅛
Collins & Aikman	14⅜	13½	13⅜	— ⅛
Consolidated Textile	⅛	⅛	¼	+ ⅛
*Courtaulds, Ltd	8	8	8	—1⅛
Durham Hosiery, pfd	23	22	22	—1
*Fabrics Finishing	⅛	⅛	⅛	....
Gotham Hosiery	5½	5½	5½	— ⅛
Industrial Rayon	56	48½	51	—6
Kayser, Julius	18⅛	17½	17½	+ ⅜
Kendall, pfd	29	24	24	+4
Mallinson	3⅜	2½	3	+ ⅛
Mohawk Carpet	17½	15	15½	+2½
Munsingwear	30	29	29	—1½
Pacific Mills	20	17½	20	+3
Real Silk Hosiery	28½	27	27½	+1
*Tubize Chat B	4⅛	3⅛	4⅛	— ⅛
United Piece Dye Works	26	24⅛	24⅛	+ ⅛

*Listed on Curb.

Fall River Mill Stocks

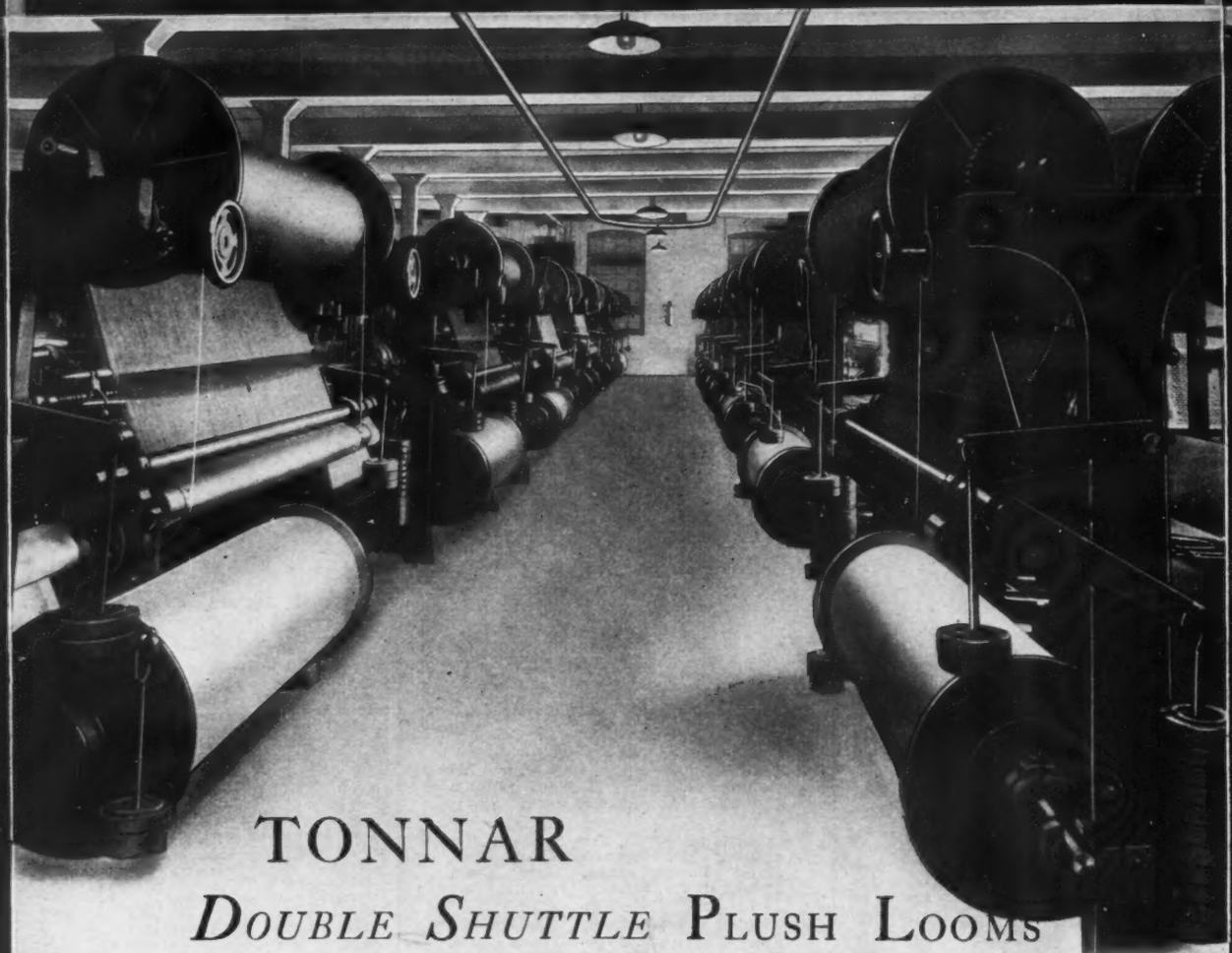
(G. M. Haffards & Co., Fall River)

	Bid	Asked
Algonquin Printing Co	275	..
Barnard Mfg. Co	5	10
Berkshire (com.)	6	..
Berkshire (Pfd.)	27	..
Bourne Mills	11	13
Border City Mfg. Co	3	..
Charlton Mills	27	..
Cornell Mills	3	..
Davis Mills	..	4
Davol Mills	..	4
Flint Mills	40	..
King Philip Mills	..	..
Laurel Lake Mills (com.)	..	5
Luther Mfg. Co	..	80
Merchants Mfg. Co	15	..
Narragansett Mills	..	5
Pepperell Mfg	77	83
Pilgrim Mills	29	..
Richard Borden Mfg. Co	1	3
Sagamore Mfg. Co	57	..
Shove Mills	1	5
Stafford Mills	..	1
Stevens Mfg. Co	28	..
Union Cotton Mfg. Co	7	..
Wemtenoe Mills	..	1

N. Carolina Mill Stocks

(R. S. Dickson & Co., Charlotte, N. C.)

	Bid	Asked
Acme Spinning Co	60	75
American Yarn & Processing Co	55	65
Chadwick-Hoskins Co. (Par $25)	7	10
Chadwick-Hoskins Co., 8%, pfd	88	95
China Grove Cotton Mills	..	82
Climax Spinning Co	50	61
Clover Mills	..	22
Converse, D. E. Co	..	80
Crescent Spinning Co	45	53
Dixon Mills	88	99
Durham Hosiery, 6%, pfd	20	25
Eagle Yarn Mills	49	61
Efird Mfg. Co	60	66
Erwin Cotton Mills	..	111
Erwin Cotton Mills Co., 6%, pfd	80	93
Flint Mfg. Co	70	86
Flint Mfg. Co., 7%, pfd	..	91
Globe Yarn Mills (N. C.)	..	15
Gray Mfg. Co	..	74
Hanes, P. H. Knitting Co	7	10
Hanes, P. H. Knitting Co., 7%, pfd	85	95
Henrietta Mills, 7%, pfd	35	51
Imperial Yarn Mills	..	60
Linford Mills	58	70
Locke Cotton Mills Co.	35	50
Majestic Mfg. Co	100	115
Mansfield Mills	..	50
Mooresville Cotton Mills	..	4
Mooresville Cotton Mills 7%, prior	..	70
Myers Mills	..	55
Myrtle Mills	..	50
National Yarn Mill	50	60
Perfection Spinning Co	49	58
Ranlo Mfg. Co	..	96
Roanoke Mills	..	60
Rosemary Mfg. Co., pfd., 7½%	90	95
Rowan Cotton Mills Co	55	65
Seminole Cotton Mills Co	..	65
Sterling Spinning Co	50	62
Stowe Spinning Co	49	61
Victory Yarn Mills Co	..	40
Ware Shoals Mfg. Co	110	125
Ware Shoals Mfg. Co., 7%, pfd	85	92
Winget Yarn Mills Co	..	46
Wiscassett Mills Co	150	170



TONNAR

Double Shuttle Plush Looms

in operation

TONNAR Double Shuttle Plush Looms owe their popularity to three most essential factors—Sturdiness, Flexibility and Speed. Designed by Pioneer Loom Builders, they lend themselves easily to fixing and operation.

The unequalled production capacity of the New Tonnar Plush Loom is of vital import to mills seeking increased production.

The illustration shows a battery of Tonnar Looms in operation at the plant of La France Plushes, Ltd., Woodstock, Ontario, whose products are a credit to the Mill as well as to the Looms.

Consult us on your Pile Fabric Loom Problems

J. J. KREHBIEL COMPANY
381 Fourth Avenue
NEW YORK

KREHBIEL

TEXTILE MACHINERY

New Lists Have Been Issued by Many Rayon Producers

THE following material represents the new rayon price schedules as made public to date by the producers:

Viscose Prices

Viscose Co. Jan. 8 announced new prices of viscose process rayon yarns, effective Jan. 9, as follows:

Den.	Filament	1st Quality	2nd Quality
75	18 and 30	$1.35	$1.25
100	18 and 40	1.10	1.00
125	36	1.00	.90
150	24, 36 and 40	.75	.72
150	60	.85	.82
170	27	.75	.72
200	30	.75	.72
250	36	.70	.67
300 and coarser		.63	.60

The statement carried the following amplifications: 150/40 oiled knitting cones suitable for knitting only, 75c. Other coning and converting prices unchanged. The above list subject to 90-day guarantee, until further notice, against price decline. Present stocks of obsolete and discontinued 150 denier Dulesco oiled cones suitable for knitting only 65c. per lb., as long as available, but this is offered without quality or price guarantee. Change in bonus arrangement effective Jan. 1, and continuing through twelve months: ½ of 1% on first 100,000, ½ of 1% on second 100,000 and continuing at this ratio to a maximum of 600,000 at 3%. Dulesco and bright yarn unchanged.

Du Pont Prices

The Du Pont Rayon Co. announced the following prices effective Jan. 9, for its viscose process yarn.

WEAVING TRADE

Standard Yarns:—

	Bright or Dull		1st Bl. or Unbl. Cones, Spools Tubes
	1st Skeins	2nd Skeins	
150– 40	75c.	72c.	78c.
200– 35	75	72	78
300– 50	63	60	66
450– 72	63	60	66
600– 96	63	60	66
900–144	63	60	66

Super Extra Yarn:—

	Bright or Dull		
150– 20	...	...	1.75
175– 30	1.35	1.25	1.40
100– 40	1.10	1.00	1.15
125– 50	1.00	.90	1.05
150– 60	.85	.82	.88
170– 60	.85	.82	.88

Knitting Trade

Standard unbleached oiled coned yarn supplied to the knitting industry will be 150 denier, 40 filament at 75c. per pound. In the event that the knitting trade is supplied with oiled cones of other deniers, the price of these oiled cones will bear the same differential between cones and skeins as shown above for the weaving trade yarns, namely 3c. or 5c. above first grade skein prices.

The stocks of oiled cones in obsolete and discontinued filament counts of 150 denier suitable to the knitting trade only, will be offered at 65c. per pound.

Prices on all Lolustra yarns will be the same as bright yarns. Prices of standard yarns guaranteed for a period of 90 days from date of invoice.

A quantity rebate payable at the end of the calendar year, will be in force beginning at ½% for $100,000 net, and increasing ½% for each additional $100,000 until a maximum of 3% at $600,000 is reached. Anything above $600,000 carries 3%.

American Bemberg Corp.

These new prices have been announced by American Bemberg Corp. as of Jan. 9:

Den.	Fil.	New List	Old List
100	75	$1.35	$1.40
120	90	1.22	1.30
150	112	1.10	1.25
180	135	.97	1.10

Figures are for yarn prepared or unprepared, 2½ to 5% twisted, untwisted, on spools, cones, bottle bobbins or in twisted skeins.

No twist, on skeins, deduct 10 cents. Finer size prices unchanged.

American Enka Corp.

The American Enka Corp. announces new prices effective Jan. 12 as follows:

Bright Yarn

Den.	Fil.	1st	2d
75	18	$1.35	$1.25
100	40	1.10	1.00
150	32	.75	.72
150	40	.75	.72
150	60	.85	.82
300	42	.63	.60
50 denier on cones	..	.75	...

Terms, 2%, 30 days.

American Glanstoff Corp.

American Glanstoff Corp.

Den. & Fil.	First Quality
75–30	$1.35
100–40	1.10
125–42	1.00
150–32 and 150–42	.75
150–60	.85
170–32	.75
200–42	.75
300–62	.63

These prices are skeins, cones and spools in all deniers, high as well as soft luster. Shipping spools are charged for but returnable. Undesulphurized yarn 1 cent per pound less.

Tubize Chatillon Corp.

The new price list of Tubize Chatillon Corp. effective as of Jan. 9:

Tubize and Sanconize
Nitro-Cellulose.

Den.	Fil.	Skeins 1st	Skeins 2nd	Cones
50	12	$1.50	$1.40	$1.60
75	18	1.35	1.25	1.40
100	20 & 26	1.05	.95	1.10
125	25 & 30	.95	.85	1.00
150	30 & 36	.75	.72	.75
175	30 & 36	.75	.72	.75
	Chardonize—Nitro-Cellulose			
100	26	1.10	1.00	1.15
125	25 & 30	1.00	.90	1.05
150	30 & 36	.80	.75	.83
175	30	.80	.75	.83
	Sunbeam—Viscose			
150	24, 30, 40	....	.72	.72

90 day guarantee.
Quantity redate schedule.
Calendar year only — maximum 3% on $600,000. Starting ½% $100,000, and ½% for each additional $100,000.

May Propose Merger of Arkwright Club and N.A.C.M.

A plan for the combining of the Arkwright Club with the National Association of Cotton Manufacturers which provides for the retention of the essential services of both organizations will be submitted to the board of government of the National Association at its meeting Monday, Jan. 19. If the recommendations of the joint committee representing the two groups meet with the approval of the board a special meeting of the National Association will be called for Friday, Jan. 30, to provide an opportunity for the members to act on the matter.

If the recommendations of the committee are adopted the consolidation will take place by liquidating the Arkwright Club at the close of its present fiscal year, March 31.

Report 10% Wage Cut by Viscose and Woonsocket

Following on the heels of the cut in rayon yarn prices, come reports of wage reductions by several producers. H. C. Neren, manager of the Viscose Corp. plant at Roanoke, Va., announced Jan. 14, a 10% reduction in wages, and it was understood that similar reductions had been made in all other Viscose plants. A 10% wage cut, affecting both office and plant employees, also was reported to have been made by Woonsocket (R. I.) Rayon Co.

Textile Converters Elect Officers

Louis F. Hall, Louis F. Hall & Co., Inc., New York, was elected president of the Textile Converters' Association at a meeting of the board of directors in New York Jan. 9. A new office was created, chairman of the board, to which Henry Lauten, former president, was elected. Mr. Lauten declined re-election at the annual meeting of the organization in December. Other officers elected were: Arthur Fluegelman, Sherman Trowbridge and Edwin E. Berliner as vice-presidents. Walter B. Levett was re-elected secretary.

Export Managers Club to Meet March 3

Annual get-together of the Export Managers' Club of New York will be held at the Hotel Pennsylvania, New York, March 3. The program is outlined as follows: (1) The "follow through" in export; (2) build today for permanent business; (3) meeting everchanging conditions; (4) building consumer preference; (5) economy in exporting; (6) the credit problem.

Cotton Dress Style Show Held

An all-cotton fashion show was held in Baltimore Jan. 7 in connection with annual meeting of the Maryland Farm Bureau Federation. Popularity of cotton fabrics for spring was emphasized by Miss Susan Bates, of The Cotton-Textile Institute.

Wool Institute Elects Representatives

After a meeting of the board of directors of the Wool Institute at the Manhattan Club, New York, Jan. 14, it was announced that the following would serve as vice-presidents during 1931:

Franklin W. Hobbs, Arlington Mills; Col. C. F. H. Johnson, Botany Worsted Mills; directors, G. A. Adam, Parker Wilder & Co.; H. M. Ashby, F. C. Huyck & Sons; Louis Bachmann, L. Bachmann & Co., Inc.; Wm. A. Broadhead, Jamestown Worsted Mills; Albion Buckley, Buckley & Cohen; Thomas T. Clark, Talbot Mills; Wm. H. Folwell, Folwell Bro. & Co., Inc.; Waldo Grose, Botany Worsted Mills; F. J. Harwood, Appleton Woolen Mills; Lewis A. Hird, Samuel Hird & Sons; J. L. Hutcheson, Peerless Woolen Mills; R. L. Keeney, Somersville Mfg. Co.; Everett L. Kent, Kent Mfg. Co.; Philip Kunhardt, Geo. E. Kunhardt Corp.; A. C. McGowan, T. H. McGowan & Sons Co.; Allen R. Mitchell, Jr., Allen R. Mitchell & Son; F. K. Nixon, Worumbo Company; Wm. G. Park, Airlie Mills; E. L. Parker, Parker & Kemp; James K. Selden, Selden Worsted Mills; F. F. Stafford, Cleveland Worsted Mills Co.; J. P. Stevens, J. P. Stevens & Co., Inc.; Albert H. Stursberg, Livingston Worsted Co.; W. V. E. Terhune, Terhune, Yereance & Wolff; F. W. Tipper, Deering Milliken & Co., Inc.; E. E. Whitman, William Whitman Co. and Leo Wolff, Terhune, Yereance & Wolff.

According to the plan for the operation of the Institute adopted at a meeting of the industry on Nov. 28, at the Hotel Roosevelt, an executive committee was appointed, composed of the following men:

G. A. Adam, Lewis A. Hird, Col. C. F. H. Johnson, Allen R. Mitchell, Jr., F. K. Nixon, A. H. Stursberg, W. V. E. Terhune, F. W. Tipper and F. A. Tracy.

Deering, Milliken Unemployment Benefit Plan

(Continued from page 30)

existence of the plan, that is, during the depression period 1920-1922. The high point was reached in the last of these three years, when total benefits paid out amounted to $14,128, or 2.6% of the payroll. The total number of weekly benefit payments for the year was 8,797 and the average amount of weekly benefit $1.60 per unemployed eligible. The total amount of payments into the unemployment benefit fund contributed by the company under the plan has been $93,356.96, all of which had been paid in by March, 1922, there having been no surplus for such contributions since. Against this, a total of $68,263.77 had been distributed in benefit payments by the end of April, 1929, $7,500 of the balance having been turned over to the health fund for employees and $1,500 to an employee housing company in accordance with the provisions of the plan. Some $16,000 stood to the credit of the unemployment compensation fund at the end of March, 1929.

Plan Discontinued at Rockland

Although the lay-off benefit plan of the Rockland Finishing Co. plant of Deering, Milliken and Co. went into effect about the same time and on about the same terms as that of the Dutchess Bleachery establishment, it went out of existence, for all practical purposes, in 1923 when it met its financial Waterloo. Beginning with an original contribution from company surplus of $100,000 in January, 1920, the company evidently was harder hit by the consequent business depression, its contribution in the year 1923 having dwindled to $149. While the Dutchess Bleachery Works in 1920, with approximately 550 employees, but paying benefits on slightly more generous terms, disbursed only $13,477 in unemployment compensation, or 2.4% of its payroll, the Rockland Finishing Co., employing somewhat more than 900, paid $63,643.19, or 5.72% of its payroll in benefits. During 1921, the Rockland Finishing plant paid out $35,565.81, or 3.82% of its payroll as against the Dutchess Bleachery's 0.6% of payroll. More than $7,000 paid out in benefits during the next two years wiped out the total amount of contributions, aggregating $106,279.95, provided under the plan by the company in the three and a half years during which the plan was in operation.

George F. Mahoney New Secretary of Cotton Waste Exchange

At a special meeting of members of the American Cotton Waste & Linter Exchange held in Boston this week, it was voted to combine the offices of secretary and traffic manager, and George F. Mahoney, traffic manager, was appointed secretary to succeed Samuel H. Roberts, deceased. President Grady S. Kennington, who presided, referred to the many services rendered by the new secretary and expressed the hope that members would cooperate with him in bringing the exchange to the highest possible state of efficiency. Mr. Mahoney is a registered practitioner before the Interstate Commerce Commission and an instructor on traffic management for the University Extension Division of the Mass. Dept. of Education.

Cotton Merchants To Hold Annual Meeting

The annual meeting of the Association of Cotton Textile Merchants will be held at offices of the association, 70 Worth St., New York, Jan. 20, 1931. Four directors will be elected for three-year terms to succeed Bertram H. Borden, Jacques Bramhall, Magruder Dent and S. Robert Glassford, whose terms expire. A director will be chosen to the two-year unexpired term of Donald B. Stewart. Officers for the next year will be elected by the new board following the annual meeting.

G. R. A. Spring Goods Style Show

A costume and fashion show was held Jan. 13, at Hotel Astor under the auspices of the Garment Retailers of America. New cottons for evening wear attracted attention. Woolens, silks and synthetic yarn goods were featured.

The following firms were represented: Bemberg, Belding-Heminway, Blumenthal, Botany, Celanese, Corticelli, Deering, Milliken, Theodore J. Gallagher, Irish Linen Guild, Kandelaft Silks, William Openhym, Schwarzenbach Huber, L. & E. Stirn, and The Cotton-Textile Institute.

The growing importance of fabric processing in relation to style was further illustrated in a group of costumes shown at this style show. In four costumes high-lighted at the exhibition, the material was processed by the National Silk Dyeing Co., of Paterson.

Retailers Fashion Show To Stress Merchandising

A fashion show, accenting spring and summer styles will be presented Friday, Feb. 6, as a feature of the twentieth annual convention of the National Retail Dry Goods Association, to be held at the Hotel Pennsylvania, New York City, Feb. 2-6. The purpose of the show is to demonstrate how the spring and summer costumes should be presented to the customer, and will include the following divisions: sports, country clothes, town day clothes, clothes for the suburban woman who drives a car, Sunday night and formal, afternoon, and evening. The show is under direction of Mrs. Chandler Hall.

A feature of the session on Feb. 5 will be a discussion led by H. S. Gelbtrunk, of R. H. Macy & Co., for the retailers, and T. B. Hill, president of the Silk Association of America, Inc., and president of C. K. Eagle & Co., for the manufacturers. They will discuss the general question: "Is the manufacturer and converter of fabrics including the retailer in the matter of styles?"

Protective Textile Association Formed

An organization bearing the name Protective Textile Association, Inc., of New York City, the general aims of which are stated to be the fostering of trade, the correcting of abuses and promotion of more constructive relations between creditors and debtors, has been chartered by the Secretary of State, at Albany, N. Y., as a membership corporation without capital stock. The objects as stated in the certificate of incorporation emphasize the importance of mutually protecting and improving business relations between buyers and sellers in the textile industry. Copans & Goldstein, of New York City, are attorneys for the corporation.

Miss Ray to Edit Viscose "Crown News"

The Viscose Co. now offers its "Crown News" monthly in a new dress and in enlarged size. Beginning with the January issue, the monthly, which deals primarily with developments connected with the company's quality-control plan, will be extended to an eight-page booklet with four-color cover and a materially dressier appearance, from the standpoints of paper, printing and illustrations. John A. Spooner, merchandising director of the Viscose Co., announced the appointment of Miss Christine Ray as editor of "Crown News."

Eagle's Expands Tie Silk Department

Walter S. Fraser, vice-president and director of sales of C. K. Eagle & Co., Inc., silk manufacturers, New York, announced this week that Frank Headon, manager of the tie silk department, would have associated with him in the department as associate manager, E. S. Dreux, formerly manager of the men's tie silk and muffler departments of the Amalgamated Silk Corp. Mr. Fraser stated that the acquisition of Mr. Dreux makes possible an expansion in this field. George W. Cornelius, salesmanager for the last seven years of the tie silk department, and Edwin C. Eyerly, a salesman for the same division for 11 years, have resigned.

Hetzel Appoints Sales Agent

Geo. C. Hetzel Co., Chester, Pa., worsted manufacturers, has appointed E. Schwartz, Inc., 257 Fourth Ave., New York, sole selling agents.

C. C. Harding to Cover Southern Knitters for Geo. B. Pfingst

C. C. Harding has joined the sales force of Geo. B. Pfingst, Inc., manufacturers of silk yarns for knitters, 308 Chestnut Street, Philadelphia. Mr. Harding will devote his time to southern knitters and will have his office at Charlotte, N. C.

Widder Bros. Consolidate N. Y. City Departments

Widder Bros., manufacturers of crepe silks announced that the firm's cutting up department was moved Jan. 10 from its old location on West 37th St., to 215 West 39th St., New York City, and that the retailers' branch at 145 Madison Ave., would be merged with the cutting-up division and located at the 39th St. address. The quarters on West 39th St. were formerly occupied by the Amalgamated Silk Corp.

The Wage Fight in British Cotton Industry

(Continued from page 31)

the circumstances render an extra necessary. This is only in the natural course and constitutes revision of an out of date list.

The basis rate is to be 15d. per 100,000 picks for following eight looms. The standard cloth taken is up to and including 28 inches wide, with up to and including 60 ends per inch in the reed, with 26s or finer counts as weft and up to and including five lifts. The basis wage for this on a 40-hour week would be 49/- for eight looms and 50/7½ for ten looms. Where however the quality and class of cloth make it undesirable for more than six looms to be run then the basic wage would be 47/4. The wages of course rise with the number of ends per inch, thus with 100 ends on eight looms the wage would be 55/6 and with ten looms 57/1½. Suitable additions are provided for cloths of greater width than 28 inches. These amount to 1.25 per cent for each inch from 28 to 36 and thereafter of 1.5 per cent for each inch up to 72 inches. Similarly for coarse weft the addition proposed is 1½% for each count below 26's. Over 5 lifts and up to eight 5% is added and so on. There is an additional 15% for jacquards. The old rates for rayon have

TEXTILE WORLD Cotton and Wool Index Numbers

COTTON INDEX NUMBERS

Date	Cotton	Yarns	Gray Goods	Colored Goods	Average for Cloths	Group Average
July 31, 1914	100	100	100	100	100	100
1925						
January.....	192	197	195	173	184	187
April.....	196	194	193	180	187	188
July.....	197	183	185	176	181	182
October.....	174	189	193	178	186	186
December...	161	176	179	170	175	174
1926						
January.....	167	175	177	162	170	171
April.....	153	163	161	155	158	159
July.....	149	149	151	141	146	147
October.....	106	141	147	144	146	143
December...	101	135	139	141	140	137
1927						
January.....	107	134	140	140	140	138
April.....	118	136	143	142	143	140
July.....	143	149	156	145	151	150
October.....	168	176	184	169	176	176
December...	157	165	169	167	168	167
1928						
January.....	151	163	166	166	166	165
April.....	164	160	160	165	162½	162
July.....	174	167	165	168	166½	167
October.....	157	161	162	164	163	162
December...	164	167	162	165	164	164
1929						
January.....	162	166	158	169	163½	164
April.....	163½	164	157	173	165	165
July.....	149	160	149	166	158	158
October.....	147	160½	155	161	158	158
December...	138	154	142	159	151	151
1930						
January.....	138	149	141	157	149	149
February....	125	144	134	157	145	145
March.....	120	138	130	157	144	142
April.....	131	139	129	156	143	142
May.....	131	136	129	156	142	141
June.....	116	127	120	150	135	133
July.....	105	120	119	142	130	128
August.....	96	115	114	142	128	124
September..	87	112	114	136	125	121
October.....	85	110	115	125	120	117
November..	88	110	116	126	121	118
December...	80	106	109	127	118	114

THE statistical story of the course of cotton and wool prices during 1930, as disclosed by a study of the index numbers quoted in the tables herewith, has been one of almost continued loss and retreat.

In December raw cotton at 80 and gray goods at 109 moved into new low ground since these indexes were started in 1919, and were off 58 and 32 points respectively from the highs of the year touched in January; yarn at 106 was at the lowest point since June, 1921, and showed a loss of 43 points from January. Colored goods showed a loss of 30 points from the year's high, but this index has recovered 2 points from the low of 125 touched in October, 1930.

The downward trend of values of wool, tops, yarns and cloths was much less drastic and of a somewhat different nature. The major decline in the cotton group occured in the last six months of the year, raw cotton losing 51 points during that period. The wool group on the other hand showed remarkable stability from May to December, declining during that time only 5 points. The extent of the decline from January to December in the wool index group is as follows: wool, 29 points; tops, 30; yarns, 23; cloth 11.

Inquiries regarding interpretation and use of TEXTILE WORLD index numbers may be addressed to the Statistical Dept., 1427 Statler Bldg., Boston, Mass.

WOOL INDEX NUMBERS

Date	Wool	Tops	Yarns	Cloth	Group Aver.
July 31, 1924	100	100	100	100	100
1925					
January.....	215	213	211	229	221
April.....	219	234	230	241	235
July.....	216	217	216	239	227
October.....	216	212	212	227	220
December...	216	215	216	229	222
1926					
January.....	215	213	211	229	221
April.....	181	193	198	224	208
July.....	173	184	189	215	199
October.....	178	186	193	209	198
December.....	177	186	191	209	198
1927					
January.....	178	187	190	209	198
April.....	177	182	184	211	196
July.....	180	183	183	211	196
October.....	185	185	189	211	199
December.....	190	187	186	211	199
1928					
January.....	194	193	186	212	201
April.....	199	206	198	215	208
July.....	204	206	203	214	209
October.....	197	197	203	212	206
December.....	199	198	201	212	206
1929					
January.....	199	198	201	211½	206
April.....	187	189	198	211	202
July.....	169	179	188	211	194
October.....	164½	181	188	211	194
December.....	156	163	182	211	190
1930					
January.....	148	161	177	211	188
February....	138	150	173	209	183
March.....	132	154	169	202	177
April.....	127	179	164	202	175
May.....	124	176	159	202	173
June.....	124	135	160	202	173
July.....	125	135	158	200	171
August.....	125	135	158	200	171
September...	125	135	157	200	171
October.....	124	135	154	200	170
November...	121	133	154	200	169½
December.....	119	131	154	200	169

Knitting Department, Morganton Full Fashion Hosiery Company, Morganton, N. C., in which Manufactured Weather assures a higher quality product and better working conditions for operatives.

MANUFACTURED WEATHER
. . . for Better Hosiery

HERE is another hosiery mill which can point to Manufactured Weather as a contributing factor in the production of its uniformly high quality silk hosiery . . . assuring an even-running thread, machines in better adjustment, more comfortable working conditions for operatives.

Those modern mills equipped with Manufactured Weather have found that operation is smoother, faster . . . that quality is improved . . . that production costs are lowered.

Another important factor in the Carrier-conditioned mill is adequate ventilation . . . without the necessity for open windows. This results in a definite improvement in the health and efficiency of employees, assuring a better day's work, less frequent sick-leave and a lower rate of labor turnover.

Manufactured Weather is equally adaptable to the production of cotton, wool, rayon and the various mixtures . . . providing atmospheric conditions best suited to the individual product, operation or mill. Equipment is available to meet the specific requirements of *any* mill or department, regardless of size or location.

While you think of it, why not write a brief note to one of our offices for information, or, if you prefer, ask for a visit from one of our engineers?

Carrier Engineering Corporation
A DIVISION OF CARRIER CORPORATION
NEWARK, NEW JERSEY

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AIR CONDITIONING
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CALCUTTA, JOHANNESBURG

CÄRRIER
LUFTTECHNISCHE GESELLSCHAFT
STUTTGART, BERLIN

Manufactured Weather makes "Every day a *good* day"

been much reduced and are now to be 10% for rayon warp or weft and 15% for warp and weft. There is also a 5% extra for pick finding up to and including five lifts and of 7½% for over five lifts and jacquards. Lower additions are arranged however when the looms are fitted with weft feeler motions. Then comes one of the most interesting features of the list and that is the statement that the percentages for extras are to be added together and put on to the basis in one figure. This remedies one of the worst defects of the old list.

"School for Textile Research" to Be Held at M.I.T.

The Massachusetts Institute of Technology, Cambridge, Mass., has authorized another session of the School for Textile Research, similar to that run a year ago. The session will begin on Friday, Feb. 13, and will continue for six weeks. The exercises will take place all day Friday, Friday evening and all day Saturday of each week. The tuition is $50. The work will be in charge of Professors Haven and Schwarz.

Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended Jan. 10, based upon data compiled by the Market News Service of the Bureau of Agricultural Economics, Department of Agriculture, follow:

	Week Ended Jan. 10	Total to Date 1931	Total to Date 1930
Domestic	1,820,000	2,726,000	5,903,000
Foreign	1,217,000	2,262,000	1,803,000
Total	3,037,000	4,988,000	7,706,000
IMPORTS AT PRINCIPAL PORTS			
Boston	1,217,000	2,262,000	1,803,000
Philadelphia	622,000	1,216,000	4,570,000
New York	1,690,000	2,419,000	2,568,000
Total	3,529,000	5,897,000	8,941,000

Worsted Sales Yarn Data Issued

Industrial Research Department of the University of Pennsylvania, Philadelphia, has published a booklet called, "What's Happening to Spinning Spindles in Worsted Sales Yarn." It is an estimate of post-war changes in sales spindles. Significant findings follow:

A downward trend in worsted yarn sales spindles is now under way, the number declining steadily since 1925. The English system trade holds a better position today than for the last 11 years.

The year 1930 finds more spindles on French sales yarn than in 1919. Following a 1925 peak, French equipment shows a decline, but not enough to eliminate even half of new spindles introduced between 1920 and 1925.

The decline in English system mills has been confined to exclusive spinning mills; weaving plants spinning English sales yarn have increased their spindles since 1926.

An important conclusion of the bureau is that, "Adequate data are a pressing need if the capacity situation in worsted yarn is to be understood and controlled. Night operation and varied length of the work week call for an elastic measure of capacity." Mills go out of business, they say, but what becomes of their spindles?

Navy Opens Bids to Supply Melton Cloth

Bids for supplying the Navy Department with dark blue melton cloth were opened at the Bureau of Supplies and Accounts, Jan. 13. Schedule 4818, class 339 called for 75,000 yd., dark blue melton cloth, 16 oz., not less than 55 in.; schedule 4818, class 340 called for 30,000 yd., dark blue cloth, 30 oz., not less than 54 in., type C. Following bids were received:

	Class 339	Class 340
American Woolen Co.	$2.20	$3.42
Charlottesville Woolen	2.17	3.30
Clinton Woolen Mfg. Co.	2.088	3.648
Columbia Woolen Mills	2.04 part	3.13 part
Columbia Woolen Mills	2.14 part	3.19 part
Columbia Woolen Mills	2.16 part	
Germania Mills	2.047	3.19
Holden Leonard Co.	2.01	3.103
Kent Mfg. Co.	2.138 part	No bid
Kent Mfg. Co.	2.168 part	
Kent Mfg. Co.	2.228 part	
Kent Mfg. Co.	2.178 complete	
Worumbo Co.	2.12 part	3.49
Worumbo Co.	2.17 part	
Worumbo Co.	2.24 part	
Worumbo Co.	2.175 complete	

Cook Heads Memphis Exchange

Everett R. Cook was elected president of the Memphis Cotton Exchange Jan. 14, defeating John J. Caughlin.

Three vice-presidents were elected. They are D. O. Andrews, B. E. Boothe, and W. R. Martin Luckett.

Directors elected to serve for two years are F. G. Bartin and J. S. Humphreys. Directors to serve one year are Henry H. Haizlip, W. L. McKee, and W. L. Oates.

A. H. Bower was reelected treasurer. He was unopposed.

Business News

G. A. Vollmer, C. H. Andrews Now with Robert Gair Co.

G. A. Vollmer, formerly vice-president of the Kieckheffer Container Corp., and C. H. Andrews, formerly of the Robertson Paper Co., have joined the sales staff of the Robert Gair Co., New York City, where they will assist in the expansion of container and folding box sales.

Baldwin-Southwark Takes Over Southwark Foundry

The Southwark Foundry & Machine Co., manufacturers of textile equipment of Philadelphia, has transferred the bulk of its assets to Baldwin-Southwark Corp., as of Dec. 31, last. The latter firm has assumed all outstanding liabilities and will carry on the entire business formerly done under the name of Southwark Foundry & Machine Co.

Howard Bros. in Larger Atlanta (Ga.) Plant

Howard Bros. Mfg. Co., makers of card clothing, heddles and other textile equipment, have moved their southern plant in Atlanta, Ga., into new quarters at 244 Forsythe St., West. The plant now has enlarged facilities and occupies the entire second floor of a building 60x135 ft. The plant is devoted chiefly to re-clothing card flats and re-covering lickers-in, and has a wider range of modern machinery for card clothing service.

Veeder-Root Announces Executive Changes

L. W. Stevens, superintendent of the Hartford (Conn.) plant of Veeder-Root, Inc., counting and recording machine manufacturers, has been appointed general manager of the Bristol and Hartford plants. H. L. Spaunburg, manager of the Bristol plant, becomes chief engineer and this department will be consolidated at Hartford. Richard James succeeds Mr. Stevens as superintendent at Hartford and K. D. Graham succeeds Mr. Spaunburg as manager at Bristol.

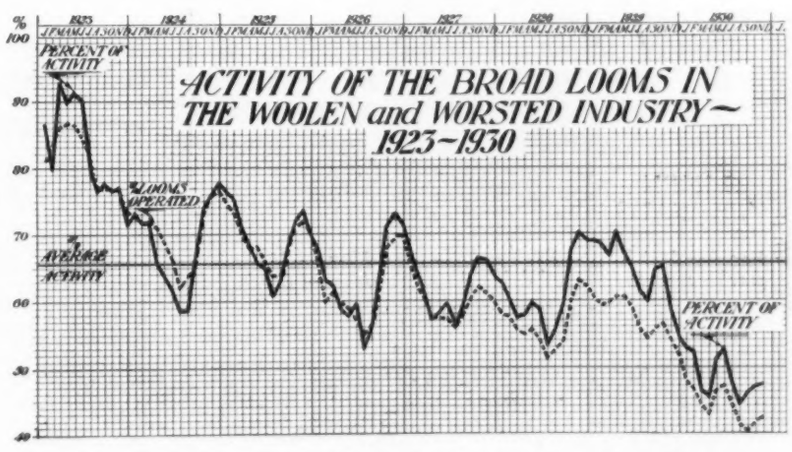

Chart issued by Wool Institute, showing activity of broad looms in the woolen and worsted industry from 1923 to 1930 inclusive. Percentage of looms that were active some time during each month is shown in dotted line and percent of single shift capacity operated is shown in solid line

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